



HEALTH
SERVICES
IN ISRAEL



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Health Services in Israel

EDITED BY

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Health Services in Israel

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PREFACE

In 1958, I was pleased to preface the publication of 'Health Services in Israel — a Ten Year Survey' under the editorship of Professor Th. Grushka; now, after the lapse of nearly another decade, a new edition, revised and brought up-to-date, is presented to the reader.

The first decade of the existence of the State of Israel was dominated by the need of the absorption of large numbers of immigrants from different countries. Those destitute immigrants returning to their homeland carried with them a heavy load of suffering — under Nazi persecution and otherwise; in addition, communicable diseases such as tuberculosis, filariasis and trachoma were rife among them, infant mortality was high, and hygiene was low. Adjustment difficulties and crowded transition camps created serious problems.

Progress has been made since then. Tuberculosis mortality now stands at 2.9 per 100,000, which is among the lowest rates anywhere; malaria has been virtually eradicated; due to a close network of maternal and child health stations, infant mortality has dropped from 35.0 in 1958 to 25.3 in 1966. Life expectancy in 1965 was 70.5 years for males and 73.2 years for females. Thus we have brought under control, to a considerable extent, the most damaging of the communicable diseases, as was the case in other progressive countries, and we now face, as has happened elsewhere, other serious health problems which are, in a way, the outcome of our attainments in the health field. The rising proportion of the aged in our society as a result of the rise in the life expectancy means higher rates of cardio-vascular disease, malignancies and chronic disease in general.

Nor have we been spared the side-effects of urbanization — air pollution, noise and crowding.

The problems, needs and shortcomings are many and our efforts continue. A hospital construction programme for the coming decade envisages the addition of some 5000 hospital beds. Also, a Government-appointed committee has been entrusted with the task of seeking ways and means of introducing and streamlining general health insurance in Israel; though 80% of the people in this country are health-insured, the extension of health insurance to the remaining 20% presents difficulties and problems that are not easy to overcome.

The present publication reports on these our activities in the field of health, depicting attainments as well as shortcomings and problems.

I should like to express my sincere appreciation to Professor Th. Grushka for his painstaking efforts in compiling the data for the second decade and for carefully editing this publication.

I. Barzilai

Minister of Health

Jerusalem, February, 1967

This volume was being prepared for press when death overtook its editor. Growing tension in the Middle East area, culminating in the Six Day War (June 1967) and its aftermath, added to the delay in publication.

The work was brought to completion by the daughter of the late editor, Miss Ruth Grushka M.S.W., M.Sc., under the guidance of Dr. S. Ginton of this Ministry.

I. B.

ACKNOWLEDGEMENTS

The origin of this book goes back to the publication "The Health Services of Israel", a survey prepared by members of the staff of the Ministry of Health and non-governmental health agencies under my editorship in 1952. That survey was compiled on the initiative of Prof. Chaim Sheba, then Director-General of the Ministry. A second and enlarged edition was published in 1958. This third edition has been revised and largely rewritten.

The contributors (see list of contributors at end of volume) to it are heads and senior officers of divisions of the Ministry, as well as representatives of other Government departments and voluntary agencies. My thanks are due to all of them.

I thank Dr. A. Reshev and Mr. S. Shervin of the Ministry for assistance in a number of parts of the book; Mrs. H. Kaufman, Mrs. H. Schmorak, Mrs. H. Shomron, Mr. Ch. Brovender and Mr. R. Nall for translating certain chapters from the Hebrew original into English; Mrs. M. Ranan of the Jewish Agency for outstanding skill in finalizing manuscripts; Mr. E. Lehman for designing the charts and for typographical advice and Miss Dvorah Tsidkiyahu for her devoted help in secretarial work.

I am deeply indebted to Dr. S. Ginton of the Ministry for his tireless efforts in aiding me in the preparation of the report, and I would like to express my especial and heartfelt gratitude to Ambassador Max Nurock of the Ministry of Foreign Affairs for invaluable editorial counsel and recension.

THEODOR GRUSHKA

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INTRODUCTION

This book is a report on the efforts made in Israel to organize health services in accordance with modern concepts. Covering the period 1948-1965, it also appraises the changes in the health situation during the first seventeen years of the existence of the State. It seems necessary, however, to point to some of the circumstances in which the work reported was undertaken.

The peculiar situation in which Israel has tried hard to build up its public health services along modern lines cannot be fully understood by the mere realization that a new-born State, in a certain sense already loaded with tradition, is beginning to draw up its own legislation and to organize its own administration. There are other features which give the State its special character and which influence the aims, methods and speed of this reconstruction to a considerable extent.

1. Israel does not yet enjoy peace and security; the Arab countries openly proclaim their hostility. This condition of things forces the young and isolated State to keep a considerable part of its manpower and financial resources readied for defence.

2. The State, re-born out of the Zionist idea, has set itself the task of the 'Ingathering of the Exiles'. Immigration proceeded at a rate which, in proportion to the settled population, would normally be considered impossible. One of the first laws enacted by the Israel Parliament was the 'Law of Return', giving every Jew the right to immigrate to Israel. Since May 1948 the Jewish population has more than trebled, having risen from 649,683 in May 1948 to 2,239,200 at the end of 1964.

3. The right to immigrate was virtually unlimited by any kind of qualification. No certificate of property was demanded from the newcomer, nor was lack of physical fitness a bar. The policy of unrestricted immigration was dictated by the urgent need to save Jews from persecution and annihilation in certain countries. Most of the immigrants arrived without a minimum of personal effects, which their former Governments often prevented them from taking away. Thus came young and old, healthy, sick and invalid alike. After the ingathering of the rescued survivors of Nazi concentration camps in Europe, a considerable portion of the surviving Jews from the Balkan countries arrived.

All the Jews of Yemen and most of the Jews of Iraq were brought in, followed by a wave of immigration from North Africa and Iran. Immigration from the English-speaking countries, Scandinavia and Latin America is comparatively small.

4. A considerable number of immigrants came from countries with low cultural standards, where a democratic regime was unknown and the citizen did not enjoy even the most primitive services in the realms of education and health. In many of them, Jews were considered second-class citizens.

5. The influx of immigrants, together with the shortage of financial means, materials and skilled workers, was responsible for housing conditions which did not comply with a reasonable standard of hygiene. Only in recent years has the situation improved. Now, on the very day of their arrival, immigrants find accommodation in well-planned and well-constructed homes, especially prepared for them.

6. The stream of immigrants is intentionally channelled to the rural districts. It is one of the basic principles of Zionist philosophy to transform the Jews — who had become town-dwellers by force of history — into a nation planted in the soil of their own country. A great effort was, therefore, made to develop agriculture as an integral part of the national economy. In due course, however, no less effort has been spent on enlarging industrial productivity. New factories are sited in open and still sparsely populated areas, and even long-standing, well-established ones are transferred to outlying, newly-founded, 'development'-townships, to relieve pressure in the already densely populated regions. It is needless to emphasize how difficult it is to supply rural and distant districts with all the services of a modern State. Israel has hardly any fully developed natural resources. Its agriculture, in spite of the pioneers' success, could not meet domestic needs even before the onset of the great tide of immigration. Its industry, developing satisfactorily in certain branches, supplied only part of local requirements in consumer goods. For many years the building-up of fisheries, agriculture and industry could not keep pace with the rapid rise in population. It must be kept in mind that agricultural expansion has to be preceded by draining of swamps and clearing of rock-strewn fields. Water and electricity have to be brought over long distances and new roads built. This means that a great deal of intensive work has to be done which is not in itself productive. The country's needs in foreign currency are very large and the balance of trade is still negative. Though leaders and citizens are staunch in their belief that Israel will enlarge its productivity by hard work and wise planning so as to ensure economic independence, they know that the goal is not near. Years will pass before Israel can forgo help from the outside world. In the meantime, it will have to be very careful in the use of the funds at its disposal.



Immigrants on Arrival in Israel





'Ma'barah' — Immigrant Transit Camp





Immigrant Housing going up next to Transit Camp





From Transit Camp to Permanent Housing (Beth Shemesh)





Ashdot 1958



Ashdot 1966



Huleh Lake Land Reclamation



*Arid Zone Farming —
Ein Gedi on the Dead Sea Shore*





Farming in Judean Hills (View from Road to Jerusalem)

Tree Nursery near Palmachim in the Negev



And this, unhappily, has a retarding influence on the expansion of the health services.

7. The inter-mingling of people with such different backgrounds, cultures and value systems, people who differ so greatly in their habits of food and housing, in their social relations and language, would alone be sufficient to create tension. New immigrants are too facilely inclined to compare their own low standard of living with the relative comfort of those who preceded them. Frustration, a certain degree of bitterness and the suspicion of being discriminated against are after-effects which cannot easily be avoided. The emergence of such special psychological problems means that confidence, an indispensable prerequisite in health education, can be gained only with difficulty.

These introductory remarks may explain the unusual complexities which are superimposed in Israel on the problems inseparable from every pioneering effort.

In compiling the volume, we have been guided by a broad concept of health and have, therefore, included chapters on activities related to health but not themselves health services in the strict sense.

The contributors and the editor have made an honest attempt to present a truthful account of existing conditions and programmes. They did not refrain from disclosing lacks or from expressing criticisms. This was done in the belief that the first step towards remedial action lies in the sober perception of shortcomings.

In the nature of things, some repetitiousness has not always been avoidable.

DEVELOPMENT OF THE HEALTH SERVICES UP TO THE ESTABLISHMENT OF THE STATE

Prior to the period of the British Mandate, Palestine was one of the most backward provinces of the Ottoman Empire. Its physical and cultural resources were extremely limited and its health conditions correspondingly bad. Wide areas were malaria-ridden; enteric fever and dysentery caused a large number of deaths every year; trachoma and ringworm of the scalp were rife, and the infant mortality rate was very high.

The Jewish residents lived mainly in Jerusalem, Yafo, Hebron, Zefat and Tiberias, with only a few in farm villages (Petah Tikwa, Hadera, Rishon Le-Zion, Gedera, Rosh Pina and Zikhron Ya'akov). In the towns, sanitary conditions were appalling, in Jewish no less than in Arab quarters.

With the establishment of the British Administration, a new phase began and the health conditions of the population gradually improved. The pace was slow at first, but it quickened after voluntary social services were provided for the Jewish community, increasingly composed of European immigrants.

Owing to serious budgetary restrictions in the earlier years, the Mandatory Administration concentrated its efforts on malaria control and on the establishment of elementary preventive and curative health services, intended mainly for the Arab population. Little systematic effort could be made to combat endemic and epidemic diseases other than smallpox and malaria. Even the antimalarial services of the Government had to be supplemented by a separate Jewish service.

With little encouragement or guidance from the Government, and with hardly any financial assistance, the Jewish community had to build up its own health, education and social services. The rising standard of living of the Jewish population and the intensive activities of their health services led to a marked improvement. By the 1940's, trachoma and ringworm of the scalp had almost disappeared; malaria and enteric fever became less frequent. The decrease in infant mortality and the increase in life expectancy allowed Israel in 1948 to rank with the more developed nations.

Yet, during the Mandatory period, health conditions grew steadily better in the Arab community as well. The rates of infectious disease and infant mortality fell and life expectancy rose. Even though the improvement was less marked than in the Jewish community, conditions were ahead of those in the neighbouring Arab countries.

The progress in the Jewish community was effected by the activities of the Hadassah Medical Organization and other voluntary organizations. These included the comprehensive health insurance scheme based on voluntary contributions by members of the General Federation of Jewish Labour (the *Histadrut*).

The Hadassah Medical Organization was founded immediately after the end of World War I. From the very start, it provided curative and preventive services, successfully adapting American methods to the special needs of this country. The eradication of trachoma and ringworm of the scalp was mainly due to the systematic efforts of the Hadassah school health services. Public health education was one of Hadassah's foremost concerns, with the public health nurse playing a most important role, mainly due to Henrietta Szold's undaunted efforts.

At the same time, curative services were developed by Hadassah and by the Sick Fund (*Kupat Holim*) of the General Federation of Jewish Labour. Hospitals and clinics were established in all parts of the country. Hospital and preventive health services in Tel Aviv, in the beginning maintained by Hadassah, were taken over by the municipality and were enlarged and adapted to the growing needs. In contradistinction to the purely philanthropic societies which established and maintained hospitals and clinics on a charitable basis, the Hadassah Medical Organization based its medical work on the principle that responsibility for the services which it initiated must gradually be taken over by the local

authorities. Thus the Hadassah general hospital in Tel Aviv was transferred to the municipality in 1931, the Hadassah hospital in Haifa to the Jewish community of that town in 1932, and the Hadassah hospital in Tiberias to the National Council of the Jewish Community in Palestine (*Vaad Leumi*).

Zionist policy aimed at creating a strong agricultural sector within the Jewish community, seeing in the return to the soil one of the cornerstones of national regeneration. An integral part of this policy was the provision of medical care for the rural population, and this has always been one of the characteristics of the Jewish health services in Palestine. The high cultural standards of the Jewish agricultural pioneers required highly developed health services, and also offered favourable conditions for health education among the rural population. The Hadassah Medical Organization and Kupat Holim (which is responsible for the health services in all cooperative and collective villages) have from the beginning aimed at providing preventive and curative services for every Jewish village, irrespective of its size or accessibility. To serve small-holders and farmers not eligible for the workers' health insurance schemes, the Hadassah Medical Organization founded the Rural Sick Fund (*Kupat Holim Amamit*) in 1931; and a network of clinics was set up in the rural districts. The results of this combined care for the rural population have been most gratifying. Today, maternal and child mortality rates are extremely low among the settled population in the rural areas, considerably lower even than those in the towns.

Kupat Holim has played a vital role in the development of the Jewish medical services. This voluntary health insurance scheme today covers about three quarters of the Jewish population. Its funds are spent almost entirely on services, and only a small percentage is used for cash benefits. It has thus been possible to organize a service of high quality by employing a large number of doctors and by making maximum use of specialists and laboratories. The insurance scheme also covers dependants of the insured member.

Prior to 1948, Jewish communal activities in the fields of education, health and social services were coordinated by the *Vaad Leumi*. But it had no authority to make health regulations or to prescribe obligatory standards, nor had it adequate financial resources. The activities of its Health Department were, therefore, largely restricted to coordination of the work of Jewish organizations and to the representation of their demands to the Mandatory Government. The Department, however, made skilful use of the limited possibilities at its disposal. When the State of Israel came into being, it formed the nucleus of what later became the Ministry of Health.

PART 1

*Governmental
Health Services*

THE MINISTRY OF HEALTH

One of the earliest laws enacted by the first Kneset prescribed that the laws of Palestine, with the exception of those restricting immigration and land purchase, should remain in force. The executive powers vested in the High Commissioner of Palestine and his Director of Medical Services in all matters of public health were consequently transferred to the Israel Minister of Health. The Department of Health of the Mandatory Administration was succeeded by the Israel Ministry of Health; the district health offices continued their activities along more or less the former lines.

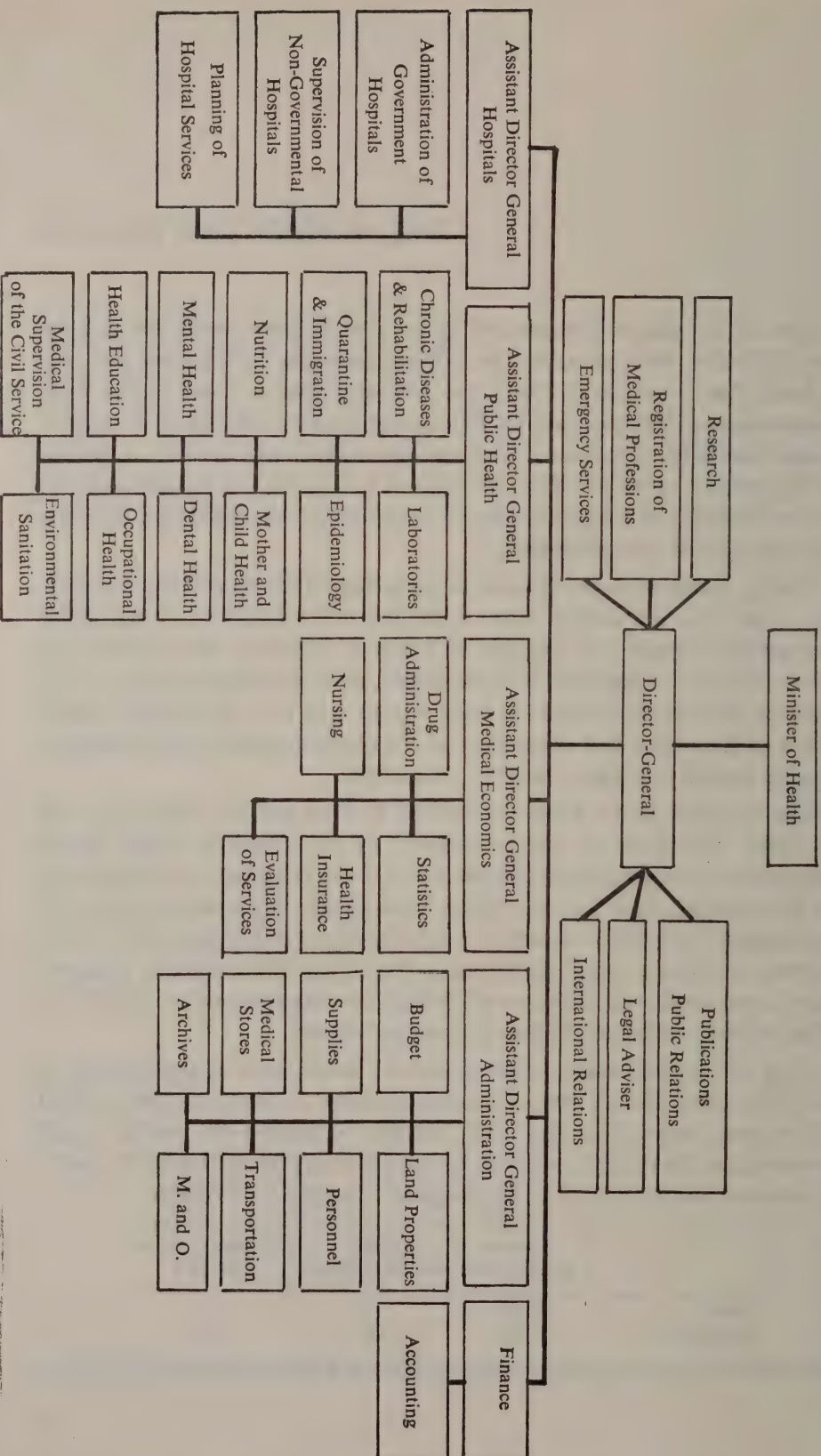
Owing, however, to the conditions prevailing at the time of the establishment of the State and shortly after, it was impossible to plan a proper health administration. Israel was engaged in a war of existence that absorbed all her resources and manpower. Simultaneously, mass immigration began. Consequently, all that could then be done was to take over the existing health services as they stood and adapt them to the changing needs; radical changes, based on careful planning, had to be postponed.

The structure of the Palestine Medical Services was not suitable for the new State. The fields of activity covered by the Palestine Public Health Ordinances were very narrowly defined, and this was reflected in the administration. For example, there was no division in the Health Department to deal with the important preventive aspects of tuberculosis, mental health, child health and venereal diseases. Similarly, the only duty of the Chief Sanitary Engineer was to recommend to the Director of Medical Services approval or rejection of sanitation plans submitted to him by local authorities.

Very few experienced medical officers of health were at the disposal of the new Ministry. Hardly any of the large number of Jewish doctors trained in European universities had had specific experience in public health administration. Moreover, as shown by the following figures for 1946, hardly any Jews had been employed by the Palestine Department of Health:

	Doctors in Palestine	Senior Medical Officers	Medical Officers Grade 1
Jews	2,386	0	5
Non-Jews	291	13	20

(From the Annual Report of the Department of Health and the Government Staff List, 1947)



In the circumstances, the Ministry had to begin almost from scratch. The personnel recruited were men and women previously employed by Jewish public institutions, such as the Va'ad Leumi, Kupat Holim and the Jewish hospitals, who had the inclination or social conscience to give a hand in the new venture. Preoccupied from the outset with the overwhelming task of coping with the needs of mass immigration, the Ministry had a rather slow start.

The Ministry is the supreme authority in all matters relating to health, and serves as the licensing body for the medical and allied professions. The Minister is a member of the Cabinet and responsible to the Knesset; the Director-General, a physician, is a civil servant. Except for certain unit chiefs directly responsible to him, most divisions and departments are under Assistant Directors-General, both medical and lay administrators (see Organization Chart).

Corresponding to its two main functions — to ensure the provision of medical care and to be Israel's principal public health agency — the Ministry is organized in two main divisions: curative services administration and public health service.

The Division of Curative Services is responsible for operating the Government hospitals (general, mental, tuberculosis, and other long-term illness) and for licensing and supervising non-governmental hospitals.

The Public Health Division is essentially a coordinator between units at headquarters (such as environmental sanitation, vector control, communicable diseases, laboratories, maternal and child health, mental health, chronic diseases and rehabilitation) and agencies in the field (district and sub-district health offices, health centres, mental health and child guidance clinics).

A large measure of authority has been delegated to the units in the field, but they are far from being autonomous and they report to the Regional Services Administration at headquarters. The proper balance of centralization and decentralization is still a subject of study and discussion.

The Ministry has over 9,000 employees, the professional staff including over 900 doctors and 3,500 nurses.

The total bed-strength in Government hospitals is over 7,600.

More than 70% of the 1966/67 Ministry budget (IL.151 million) was spent on hospitalization services.

THE REGIONAL HEALTH SERVICES ADMINISTRATION

The body responsible for the planning, execution, supervision and coordination of district and local activities in the Ministry of Health, namely, the Regional Services Administration, functions on three levels: the head office, which forms part of the Ministry's headquarters, the District Health Offices, and the Sub-District Health Offices.

The Director of the Administration coordinates the work of the public health units at the Ministry with that of other Government agencies, medical institutions and District Health Offices.

There are six District and fifteen Sub-District Health Offices:

REGIONAL HEALTH OFFICES	
District Health Offices	Sub-District Health Offices
Jerusalem	Jerusalem
Central District (Ramla)	Ramla Petah Tiqwa Rehovot Sharon (Netanya)
Tel Aviv-Yafo	Tel Aviv-Yafo
Haifa	Haifa Hadera
Northern District (Nazareth)	Nazareth Akko Afula Tiberias Zefat
Southern District (Be'er Sheva)	Be'er Sheva Ashqelon

1 NORTHERN DISTRICT

- (A) ZEFAT
- (B) AKKO
- (C) AFULA
- (D) TIBERIAS
- (E) NAZARETH

2 HAIFA DISTRICT

- (A) HAIFA
- (B) HADERA

3 CENTRAL DISTRICT

- (A) SHARON
- (B) PETAH TIQWA
- (C) RAMLA
- (D) REHOVOT

4 TEL AVIV DISTRICT

5 JERUSALEM DISTRICT

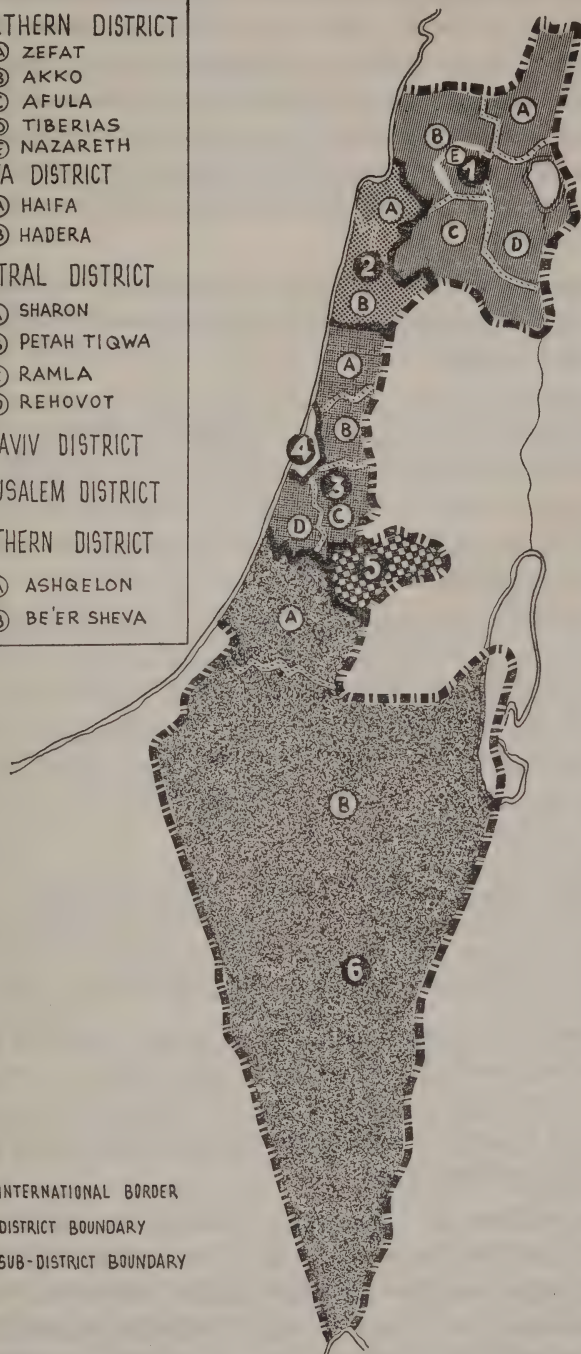
6 SOUTHERN DISTRICT

- (A) ASHQELON
- (B) BE'ER SHEVA

||||| INTERNATIONAL BORDER

— DISTRICT BOUNDARY

— SUB-DISTRICT BOUNDARY



Each District Health Office is directed by a District Medical Officer of Health, responsible for the performance of all health services rendered directly by his Office and for the supervision and coordination of those provided by other agencies in the district. He is assisted by a Deputy who usually also acts as epidemiologist of the Office, by other Medical Officers of Health, the Chief Public Health Nursing Supervisor, a district pharmacist, a sanitary engineer, a chief sanitarian, a chief malariologist, a district administrator, and a staff of doctors and public health nurses, mostly employed in mother-and-child health services.

The Sub-District Offices are staffed on similar lines, but there is only one Medical Officer of Health in each. It is the Sub-District Offices which carry out the work in the field.

Activities on the District Office level include environmental sanitation, mother-and-child health, anti-malarial work, epidemiology of communicable and non-infectious diseases, the follow-up of the chronically ill and rehabilitation, mental health, health aspects of town planning, health education, supervision of non-governmental hospitals, quarantine, and control of drugs, medicines and poisonous substances.

One of the most important duties is cooperation with, and coordination of, the operations of other Ministries or agencies concerned with health, such as the Ministry of Agriculture (meat control, animal diseases, pesticides), the Ministry of the Interior, local authority services (registration of births and deaths), the Ministry of Social Welfare, the Ministry of Commerce and Industry (food control), the Ministry of Education and Culture (school health services), and voluntary health agencies.

In every district, mother-and-child health centres are maintained, mainly by the Ministry. Of late, the emphasis has been shifting from the care of mother and child to the care of the family, including its working members, the chronically ill and aged people, and also to mental health counselling.

The maintenance by the Ministry of mother-and-child health services, including school health services, school dental health services and health education, is thought of as a transient situation. The ultimate goal is the gradual transfer of these services to local government. The Ministry's function will then be supervision and guidance.

Some problems of a particular character were dealt with jointly by the Regional Health Services and the units for mother-and-child health and epidemiology. One was the campaign against trachoma, which, as in other Oriental countries, was a serious danger to health, especially in the pre-State period. But, while energetic action in the Jewish community reduced the incidence to sporadic cases, occurring, usually, among newcomers from

eastern countries, pockets of the disease remained in the rural Arab population, chiefly in the northern district.

In 1963, a physician was trained ad hoc and sent to work throughout that district, to examine and treat the Arab inhabitants systematically, village by village. This work went on intensively till the end of 1964, when its continuation could be left to routine case detection and treatment by the existing school health services. At the end of 1964, trachoma was thought to be well under control.

A very important step towards improving the quality of the work carried out in the units of the Regional Services Administration, has been the intensification of in-service training for all categories of workers in all branches of public health.

The training takes the form of lectures and one-day seminars, and informal visits of workers from one unit to another. Several in-service training seminars have been organized by the workers themselves.

Since 1962, the services provided for the chronically ill and the aged, as well as for mental patients, are progressively integrated into the existing Regional Health Services on the sub-district level, just as are mother-and-child health services. New staff has been taken on for this purpose.

The services for the improvement of environmental sanitation are becoming ever more important. While the familiar tasks of waste-disposal, water, food and pest control are far from being effectively tackled, new problems, like the control of air pollution and radiation, have arisen.

The Ministry's policy is that the actual work in most branches of environmental health should be carried out by the personnel of the local authorities, but supervision and advice remain in the hands of the Ministry's specialists. The expertise of the local staff had, therefore, to be improved constantly.

In 1964, the Nutrition Unit was created. Its duty is to advise the Director General and departments of the Ministry itself on nutrition policy, to organize in-service training in nutrition for health personnel, to help in giving that training and to initiate research.

One of the most serious health problems, becoming more acute with each passing year, is the very high number of road accidents. As it was believed that the human factor played a very important part in the causation of the accidents, a thorough examination of drivers, mental as well as physical, became paramount, and the Traffic Department of the Ministry of Transport and Communications asked for the help of the Ministry of Health in putting an end to death on the highways. The Ministry, in its District Offices, had already been carrying out, for years, examinations of applicants for driving licences, but they were mostly confined to tests of acuity of vision. In 1962, a Medical Road Safety Institute was established by the Ministry.

ENVIRONMENTAL SANITATION

ORGANIZATION AND STAFFING

With the organization of the Sanitation Division of the Ministry of Health, the place and objectives of the Division within the larger compass of public health gradually began to take shape.

Organized and planned activity to combat man's environmental challenges of a biological, chemical and physical nature, to reduce the environmental factors in transmission of contagious disease in order to create the optimal conditions for human work and life — this was the declared objective of environmental health services.

Starting off with one sanitary engineer and one draftsman, the Division today handles food sanitation, food toxicology, vector control, water and wastes sanitation, air pollution and radiation control, building sanitation and city sanitation services, as well as professional training for sanitation personnel. The Headquarters' staff comprises five sanitary engineers, four bacteriologists, chemists and physicists, three medical entomologists and six technicians, while 10 sanitary engineers and 120 sanitarians carry out field programmes in the District Health Offices.

This cadre is suitably organized to tackle the biological, chemical and physical aspects of environmental problems. The effort must be many-sided, for population density in urban areas is rising and industrial expansion is rapid. Such growth means environmental problems which may present definite health hazards and in turn slow down development.

The Division always regarded the instruction of sanitation personnel, both of central and local government, as a major function. It hopes to make sure of a new generation of trained workers who can deal competently with complicated issues of sanitation.

In the past, environmental sanitation trainees were required to take a number of basic courses including vector control, food sanitation, milk sanitation, and legal aspects. In 1960, the Ministry gave its approval to the granting of certificates to sanitarians completing all the basic courses and having had practical field instruction for a period of three years. A committee, appointed

to evaluate the content of the instruction given, was satisfied that completion of the course meant instruction comparable to that received by a certified nurse.

In 1961, the Division advised the establishment of an environmental health school which would take the place of the short courses. The school was opened in the winter of 1965/6. Its curriculum combines theoretical study with field work, and lasts three years. Students get altogether 1,600 hours of theoretical study: five months in the first year, and half of that in the second and third years.

The senior staff takes an active part in teaching sanitation and sanitary engineering in the postgraduate courses on public health at the Hebrew University-Hadassah Medical School of Jerusalem, in courses on sanitary engineering at the Haifa Institute of Technology and in courses for certified public health nurses.

FOOD SANITATION

Progress in food sanitation has been gradual but marked. A great number of shops are now equipped with acceptable refrigeration units. The sale of pre-packaged foods in hygienically satisfactory wrappings has developed considerably. The drums of vegetable oil and kerosene, which for many years were found in groceries, have disappeared. There has been a large increase in the number of big retail outlets of the supermarket type. Generally, these are well equipped and the sanitary level which they maintain is good. Progress is slower as regards sanitary conditions in the food markets.

The Ministry of Health organizes courses for the owners of restaurants and food shops. A course of that kind usually consists of three meetings of two hours each, each meeting consisting of a lecture, followed by the presentation of a film, and concluding with a free discussion.

As regards the hawking of foods, the picture is not uniform. Much depends on the local authorities: some towns are active in controlling the situation, others show no interest yet.

During the last few years, many improvements have taken place in restaurant kitchens. Training courses have been held for workers in restaurants. One District Health Office instituted a new procedure for the courses, distributing the relevant reading material to the food handlers instead of organizing meetings as in the past. The food handlers were then invited to the Office to discuss the material with the sanitarians. The project was related to the renewal of restaurant licences in the area.

The Blue Ribbon Project

A national sanitation project was instituted, affecting all hotels and restaurants and called the Blue Ribbon project. It was carried out in conjunction with the Organization of Restaurant and Hotel Owners, participation being voluntary. The idea was to award the Blue Ribbon to all eating-places which met the required standards; at the same time, an effort was made to enhance public realization of the value of preferring such to others.

The Institute of Applied Social Research was asked by the Ministry to evaluate the project and see if attitudes of restaurant owners and their patrons had changed in the few months since its inception. It transpired that the project had affected a sizeable minority, about 15-20%, of customers, and that public attitudes were swayed in the desired direction. As for the impact on the owners of restaurants, it was shown that recipients of the Blue Ribbon were more aware of the project and of sanitary needs than those who were not recipients; holders of the Blue Ribbon were more interested in publicity in newspapers, radio, movies and buses (in that order) than the others; owners of restaurants which had not been given the award seemingly paid less attention to the project than most of their customers did.

Food from Animal Sources

The spread of salmonella bacteria through meat and egg products is still one of the most difficult problems of food hygiene. The use of cracked or punctured eggs in foods which are not exposed to high temperatures in their preparation presents a danger which demands constant watchfulness on the part of sanitary inspectors. At least one case is known of an outbreak of salmonellosis in a hospital in Israel which was due directly to the use of cracked or punctured eggs for the making of mayonnaise.

In recent years, many slaughter-houses have been opened where poultry is packaged in frozen form, ready for marketing. They are, for the most part, in agricultural areas and problems of waste elimination have been encountered. Equipment and production methods are, generally, satisfactory. The meat is quick-frozen, a procedure more sanitary than the slow-freezing method previously used.

Besides the three Government agencies which have jurisdiction over the supervision of foodstuffs derived from animals (the Ministries of Health, Agriculture and Commerce and Industry), the local authorities are also concerned here. To coordinate supervision, committees of members of the four agencies have been formed in most of the districts. They have no official standing; in several districts they are, nevertheless, well established and the agencies affirm that they derive great benefit from them.

Food Industry Sanitation

The need for more efficient methods of production has stimulated an increase in the mechanization of food industries. From the sanitary point of view, mechanical wrapping, and substitution of the primitive equipment used for washing bottles by completely automatic units, are most important. Many companies are introducing highly modern machinery for the heating and the freezing of food products.

Mechanization of packing limits the possibilities of human contact with unpackaged food. Another result is greater availability of space in factories, since, although the yield of the machine is greater, it takes up less room than was needed when packing was done by hand.

The statistics of food testing in laboratories show that, in 1960-1964, 4,362 chemical tests of 3,255 samples, 13,014 bacteriological tests and 218 entomological tests were made.

In respect of food colouring, candies, biscuits, instant pudding and the like were tested. Wine vinegar and alcohol were examined for organic phosphates, chlorinated hydrocarbons, arsenic and copper.

TOXICOLOGY OF FOOD

Public health problems in this field can be classified under two main headings: intentional food additives and toxic food contaminants. There has been considerable progress in dealing with the first category on the international and local levels, by the application of modern toxicological and administrative procedures. In the second, many points remain to be elucidated and evaluated by the same criteria as apply to the first.

Intentional Food Additives

These include food colours, chemical food preservatives and a large number of chemical compounds added to food to improve its quality.

In some countries, the general approach until recently was to list those substances known to be harmful and to ban their use in foods. This approach has been found to be inadequate in providing the degree of safety required to protect the public from the possible chronic effects of minute amounts of a chemical over a long period.

To meet this challenge, techniques of toxicological evaluation have been developed. These methods, based on animal experiments, furnish the basis for setting tolerances for chemical food additives. The data are used to fix levels in

food by first determining the 'no effect level' in animals and then translating the results to humans by taking into account differences between animal and human physiology and variations in the human population. Much work is under way to relate these factors to human dietary habits so as to ensure safe levels.

Following these principles, a series of food additive regulations has been planned to cover the entire range of intentional chemical food additives. Thus far, regulations have been published (1) to control food colours, chemical preservatives and emulsifiers and stabilisers.

The legislative programme is to extend to further groups of substances, as relevant data become available. The work of the WHO/FAO Joint Expert Committee on Toxicology and of the Codex Alimentarius Food Additives Committee has yielded impartial scientific data which have made for progress in this sphere.

Recently, an application to allow radiation of potatoes to inhibit sprouting was submitted by the Israel Atomic Energy Commission and it is being processed in a manner similar to that employed when dealing with a new chemical food additive, with, of course, special attention to problems associated with the use of nuclear radiation in general and in regard to food in particular.

There are several groups of intentional food additives, such as flavouring substances and plant extracts, that present formidable problems because of the large number of compounds involved. It is hoped that special procedures can be developed to deal with these.

Toxic Food Contaminants

These include toxic chemicals inadvertently added to food, toxic residues from utensils, packaging materials, agricultural chemicals, radioactive fall-out, poisonous seeds in grains and cereal products and mycotoxins.

Poisonings due to negligence are not uncommon. The literature offers many examples of large-scale outbreaks of food poisoning due to toxic chemicals incorporated in food by error (2). In Israel there was at least one such outbreak in August 1963, when the substitution of barium carbonate for potato flour in sausage (3) caused 144 cases of poisoning, among them 19 severe cases requiring hospitalization, and one death; an unmarked sack of barium carbonate was accidentally substituted for imported potato flour. The outbreak pointed to the need for clear marking of chemical packages, and particularly those used in the food industry. The food additives regulations so far published cover part of the ground, and an inter-ministerial committee has met to discuss the implementation of a general requirement that all chemicals be properly designated.

Toxic residues from vessels used in food manufacturing have not led to any cases of acute poisoning in recent years in Israel. Nevertheless, the formula-

tion of lists of approved materials is the desirable approach to dealing with this problem, and, owing to the complexity of the material, international bodies are the most suitable agencies to draw up such lists.

A survey of plastic packing materials employed in Israel has been started. New plastic substances are dealt with on an ad hoc basis with reference to national legislation in those countries that have enacted relevant provisions.

Residues from agricultural chemicals raise a very large question. Analyses of such foods as fruits and vegetables, meat, eggs and especially animal fats have been carried out during the past six years. Recently, a joint committee was appointed by the Directors-General of the Ministries of Health and Agriculture, to recommend action.

Radioactive fall-out due to nuclear tests and possible contamination from other sources have been monitored in Israel in cooperation with the Radiological Protection Department of the Soreq nuclear research establishment of the Israel Atomic Energy Commission, and the findings published (4, 5).

Over the last five years, there have been at least two documented outbreaks of poisoning as a result of the presence of poisonous seeds of *Datura stramonium* in imported buckwheat. After the first, stringent control was instituted, but a second outbreak occurred in 1966 and legal proceedings were instituted in consequence. Other poisonous substances have been encountered in imported grains: for example, a case of *Secale cornutum* in rye was investigated and, after it was shown that efficient methods to separate the poisonous contaminants were available, it was possible to release the shipment for treatment.

The presence of mycotoxins in foods, especially peanuts, has been the subject of much research in other countries in view of their carcinogenic nature. The problem is under active enquiry in many centres. The possible formation of substances such as nitrosamines in foods treated with nitrates or nitrites, and the formation of benzopyrene in broiled meats, are examples of the complexity of the issues encountered today.

MILK SANITATION

Milk production in Israel went up from 215 million litres in 1960 to 266 million litres in 1964. In 1964, 51 % of the raw milk was produced as pasteurized milk and sterilized milk, and 49 % as milk products.

To these figures, one has to add the products of sheep milk, of which production on Jewish farms in 1964 was 8.3 million litres. The volume of sheep and goat's milk produced on Arab farms is estimated at 10 million litres.

In 1964, 2.6 million kilograms of dry skim milk were imported, which equal approximately 26 million litres of reconstituted milk. The powdered milk was

used primarily for milk products, and not for drinking purposes, and was intended to bridge the gap between the amount of milk locally produced and the local off-season demand.

The rise in production of milk products was made possible by the development of the dairy industry. In 1960, there were 51 dairies but as a result of mergers and the introduction of more efficient methods of processing, 40 plants are now engaged in the pasteurization and sterilization of milk and the production of pasteurized dairy products, including several seasonal dairies in Arab villages.

In sanitary supervision, emphasis has been placed on the plants, since any defect there is likely to cause contamination of a large quantity of milk or its products within a very short time. It is also necessary, however, to take steps to prevent any contamination taking place during the marketing of dairy products. Fluid milk and cultured milk are bottled at the plant and other dairy products are sold pre-packed only.

The eradication of bovine diseases and the cleanliness of cow-sheds and clean milk production on the farm are supervised by the veterinarians and farm instructors of the Ministry of Agriculture.

Milk-Collecting Stations

In every milk-producing village a milk-collecting station has been built. In recent years, these stations have been equipped with improved refrigeration installations, as required by the Ministry of Health. This has led at once to the improvement of the raw milk, as was demonstrated by the analysis of the results of reductase tests. Previously, according to a survey made in 20% of the stations, the average reductase time was 2.5 hours, whereas today it is between 3.5 and 5.5 hours, a difference that clearly points to a lower bacterial content of the raw milk.

The amount of milk that is transported in insulated tankers rather than in cans has risen to over 80% of the total. This indicates a great advance in sanitation, too, for the cans are frequently a source of contamination.

Pasteurized Milk and Milk Products

One hundred and five million litres of bottled milk were marketed in 1964, 4 million litres as sterilized milk and 101 million litres as pasteurized milk. 5.8 million litres were marketed in cans.

Since pasteurized milk is a very sensitive product, the main supervisory attention is given to assuring that the sanitary and bacteriological standards of the milk are kept. Lately, the percentage of pasteurized milk achieving the de-

sired level of less than 50,000 bacteria per ml., has risen from 96 to 98 per cent; the official standard permits 100,000 bacteria per ml. on selling to the consumer at the shop or on home delivery.

Subsidized sterilized milk was supplied to indigent families. The great advantage of sterilized milk is that it does not require refrigeration at home as long as the bottle has not been opened.

In a survey conducted among these families by the Ministry of Health, it was found that children receiving sterilized milk did not have a higher incidence of gastro-intestinal disorders than children receiving milk powder.

Bottled cultured milk products (sour milk, yoghurt) are an important source of nutrition. In 1964, 25.5 million litres were marketed.

Fully automated systems for filling and capping the bottles are now installed, which prevent any human contact with the contents during bottling. Pasteurization is also properly done, as laboratory tests have confirmed.

White cheese provides a cheap source of protein in the local diet. In 1964, 14 million kilograms were produced, compared to 3.4 million kilograms of hard cheeses. In proportion to the size of its population, Israel uses more white cheese than any other country.

White cheese presents a problem of sanitation which has only been solved in part. In the process of manufacture, the product is handled manually at several stages. The dairies have now begun to introduce automatic methods of producing and packing. The Ministry is trying to make sure that, in the course of time, these will be adopted by all dairies.

The production of butter in 1964 amounted to more than 3.5 million kilograms. The hygienic tasks involved are the pasteurization of cream, and the reduction of contact with the worker's hands during process. Most dairies have introduced an automatic continuous process and all the butter is made of pasteurized cream.

Food Additives

The problem of food additives used in the production of milk and ice cream is becoming more important. With the enactment by the Ministry in 1963 of the rules concerning permissible food colours, a major campaign was undertaken to stop the use of illegal food colours in ice cream and hard cheese. The use of other food additives is governed by the rules regarding preservatives in food products, as published by the Ministry.

Concerning food additives in liquid milk, two problems should be particularly noted:

(1) the danger of antibiotic residues in milk as a result of veterinary treatment of the cows;

(2) the danger of polluting milk by insecticides during the period when cattle are being treated against insect pests.

The regulations which control the quality of milk prescribe, therefore, that pasteurized milk must not contain any antibiotics, chemo-therapeutics, preservatives, or toxic elements.

Similarly, the Ministry of Health and the laboratories of the Atomic Energy Commission keep a constant control on the amount of radioactive fall-out in liquid milk. No dangerous quantities have yet been found.

WATER SUPPLY SANITATION

Where central water distribution to homes is concerned, Israel may be listed amongst the most progressive countries. In 1965, 94% of town-dwellers and 84% of villagers were connected to water distribution networks. All in all, 92% of the inhabitants benefited from that amenity.

Transmission of contagious disease by water is very rare in Israel. The only cases recorded in the last five years occurred in small villages where water distribution is not carefully controlled. In modern Israel, water cannot be blamed for the transmission of any significant amount of intestinal disease.

In recent years, there has been rapid advance in the solution of sanitation problems. In the past, most water had been pumped from deep wells, protected against pollution. In the summer of 1964, the National Water System was inaugurated, supplying approximately one third of the population with drinking water from Lake Kinneret. It was a pioneer attempt to carry out a distribution project of such a size, utilizing surface water, but it produced new problems of sanitation, which obliged the Mekorot national water company and the Ministry of Health to take special steps to ensure the quality of the water.

Israel is now approaching the maximum utilization of its natural water supplies, and the highest priority is given to the investigation of other sources.

Schemes for the re-use of waste-water by injecting it into the groundwater and returning it as potable water are progressing rapidly. A plan for the desalting of sea-water by demineralization processes has been started on an experimental scale. Plants to demineralize sea-water by distillation and by the 'Zarchin' freezing process have been erected in Eilat. Discussions are proceeding with the United States Government on the construction of a major desalination plant, powered by a nuclear reactor.

The whole problem is crucial for the development of the country. The increased use of surface water multiplies the danger of existing sources being polluted, thus increasing the weight attached to the supervision of health aspects of water supplies.

Sanitary engineers of the Ministry have reviewed and approved scores of water development plans, ranging in size from the national project to local and small rural undertakings; they also take an active part in the formulation of national water policies. The Ministry is represented on the National Water Council, on Drainage Boards, and on all other bodies that deal with water-planning and policy. In this way, the interests of water sanitation are safeguarded in every forum where policy or legislation is decided upon.

The sanitarians of the Ministry each year collect about 15,000 water samples for bacteriological testing. The number of tests has risen in recent years, but a limited budget for laboratories and field work keeps figures below the desirable minimum.

Water Distribution to Arab Villages

When the State was established, there was virtually no provision for central water distribution, from safe sources, in Arab townships and villages. Water was taken from wells and springs which were not always adequately protected from possible contamination. The Government plan to improve conditions in this and other respects in Arab and Druze villages has already piped wholesome supplies to eighty such villages.

Central distribution of water is a tremendous sanitary boon to the villages and a stimulus to higher standards of living, but it does give rise to problems of waste-disposal. The sanitary staff of the Ministry worked out several solutions for individual villages, but much remains to be done.

Swimming Pools and Beaches

The number of public swimming pools has risen significantly of late and there are now nearly 400, two-thirds of them in rural areas. Almost all make use of modern methods of purification and filtration, with up-to-date facilities for recirculation of the water. Experimental use of bromine instead of chlorine as a disinfecting agent has given satisfactory results.

The sanitary engineers of the Ministry keep a constant check on public and privately-owned pools, including regular bacteriological and chemical tests to determine the sanitary condition of the water in them.

There has been a definite improvement in the quality of pool sanitation, although a sizeable minority, primarily in the villages, are still below par.

Supervision of public beaches is, to a great extent, carried out under the Public Swimming Places Law, which requires local authorities to assure that due sanitation standards are maintained, and the necessary life-saving facilities provided. The Minister of the Interior may declare which beaches are

fit for public use, after consultation with the Minister of Health. Certain beaches have been declared unfit for health reasons, such as contamination of the water by waste, or potential danger of bilharziasis.

In 1963, a survey was begun of the extent of contamination of the beach at Tel Aviv, jointly by the Sanitation Division of the Ministry of Health, the District Health Office in Tel Aviv-Yafo and the Felix Laboratory for Public Health there. Thus, for the first time, the degree of pollution of the Tel Aviv beach was scientifically determined. Year after year, the Ministry announced that the sea was polluted and the public were cautioned against using the beach, but, regrettably, few persons heeded the warning. After major improvements in sewage disposal in the Dan area, swimming was again permitted as from the summer of 1965, along most of the beach.

WASTE-WATER SANITATION

Because of rapid urban expansion in the early years of the State, many temporary installations, such as septic tanks, were used for the disposal of sewage. Owing to the limited capacity of the soil to absorb the sewage, and the increase in housing development, some of these installations gave rise to sanitation troubles. In time, this method of disposal was superseded almost everywhere. In the new communities, central sewerage systems are provided at the outset, and, in most places which had local systems, central systems are being introduced. Today, about 85% of the homes in the cities are connected to a central system.

There was major progress in the installation of sewerage works for the Tel Aviv area under the Dan Regional Board.

The Haifa project has been finished, and a modern sewage treatment plant built. The purified effluent was originally designed for use in agriculture, but the high salt content limits that utilization and the bulk of the sewage empties into the sea and goes to waste.

In Jerusalem, the central system is ready, but there is no provision yet for purification and removal of the waste-water. For the time being, the waste runs into wadis and grave trouble is caused: wells in the area were polluted and had to be closed; the train from Jerusalem to Tel Aviv passes an unsightly stream of sewage, about 20 km. long; the sewage also breeds mosquitoes which are not easy to control. A solution is urgently demanded, and a municipal plan to build adequate treatment facilities has recently been approved.

Most of the kibbutzim have provision for central sewage disposal, and most re-use the waste-water, after purification, to irrigate their fields. But most of the smallholders' cooperatives (moshavim), with low housing density, dispose

of the waste-water by septic tanks, and this usually works well, except where the soil is not very absorbent.

The Utilization of Waste-Water

Projects to use waste-water in farming and to enrich groundwater were largely promoted in the last few years. In a survey done in 1964 by the Office of the Water Commissioner, with the cooperation of the sanitary engineers of the Ministry of Health, the data of 150 such projects were assembled. The results showed that 15% of the waste-water from urban sources was already being utilized.

The biggest proposed project is that of the Dan Region. This, envisaging the re-use of the waste-water of Tel Aviv and six neighbouring townships and its return to the groundwater, is in the final stages of planning. Approximately 50-100 million cubic metres of waste-water will be re-used each year. The sewage will be purified in stabilization ponds and returned to the groundwater after percolating through layers of sand dunes. From the groundwater, it will be pumped for re-use in a series of special wells. The average length of time that the purified effluent will remain in the groundwater will be three and a half years, with a minimum of 400 days. The sanitary engineers of the Ministry checked the health aspects of the project and concluded that it will be able to produce water of drinking quality, subject to strict adherence to certain conditions and after the purified effluent is mixed with water from other sources.

In 1964, the Ministry published a new text of the rules that must be observed in using waste-water for agriculture; they lay down the health and sanitation standards to be met in such circumstances.

With the swift growth of industry, the problem of disposal of industrial waste-water has become serious.

The Ministry, as early as 1957, published regulations on the subject. In 1963, a revised text appeared, based on the experience of the intervening six years. The sanitary engineers of the Ministry have given special attention to the question. The issues are complex and nearly every factory presents its own peculiar problems.

In 1962, a Sewerage Law was passed at the instance of the Ministry of the Interior, establishing new legal and administrative procedures for the authorization of new schemes. All sewerage plans must be approved by three authorities: the Ministries of Health and Agriculture and the Regional Town Planning Authority.

The legal situation is now clear. Moreover, to regulate and coordinate the work of the three agencies, a National Sewerage Council was set up, which consists of members of the Ministries of Health, the Interior and Agriculture, and delegates of water authorities and local government.

Town Planning

The legislative authority for town planning was, until February 1966, based on the Town Planning Ordinance 1936. This was a good ordinance when it was first promulgated thirty years ago and served its purpose well until 1948.

The dynamic development and immigrant absorption in the past eighteen years were irreconcilable with legislation prepared for other times and other political conditions. In 1936, Government buildings were exempt from obtaining town planning approval or even a permit to build.

After 1948, about 60% of housing units and about 10% of shops, factories, schools and cinemas were planned and built directly by Ministries. Neither the outline, nor the detailed building plans, were considered by the Town Planning Commissions or received a building permit.

This undoubtedly weakened the position of the Ministry of Health, as the District Medical Officer had a virtual power of veto on the Town Planning Commissions prior to 1948.

While the Ministries and the Jewish Agency extended a certain measure of cooperation to the Ministry of Health, the tremendous pressure to finish houses and ancillary buildings, so as to accomodate new immigrants already on their way or living in temporary camps, tended to create a feeling that hygiene standards were of secondary importance in the planning stage. Furthermore, the Ministry of Health was not staffed to supply more than a fraction of the desirable advice and control.

In place of study by two Town Planning Commissions and the issue of a permit to build, projects were certified for execution by two Government architects from the Ministries of Housing and the Interior. A representative of the Ministry of Health attended their meeting, but was permitted to give comments only. The speed with which plans had to be handled made anything more than a cursory study impossible. The District Health Authority was informed at once of each newly approved project. Here, again, the volume of new construction prevented the necessary inspection being carried out at most of the sites.

The new Town Planning Ordinance of 1966 has greatly improved the situation, as Town Planning Commissions now review all town planning and building projects, and a National Planning Council approves outline town plans and formulates major town planning policy.

The most pressing town planning problem in the immediate future seems to be that of industrial location, to prevent pollution of air and groundwater. Examples can be drawn from all parts of the country of the siting of new factories without reference to their effect on public health.

Building By-Laws

Since 1929, when the present code was promulgated, vast developments have taken place in the realm of materials and methods of building and the density and height of buildings are greater. The regulations are still lamentably out of date.

The present code fixes the maximum height of buildings at eight storeys, yet buildings are going up today, in small towns as well as in the large conurbations, to heights of twelve, sixteen and, in Tel Aviv, even thirty storeys. Since there are no regulations to cover such edifices, new problems of water supply, garbage disposal and plumbing arise, unenvisaged in either the Building or the Plumbing Code.

The present regulations fix the minimum height of residential rooms in the Jerusalem area at 2.75 metres, in the Tel Aviv and Haifa areas at 3 metres, and in Tiberias and Bet-She'an at 3.30 metres. The Be'er Sheva area is not mentioned at all, presumably because, in 1929 (when the Code was enacted), most people in the Negev lived in tents.

In 1948, a committee was set up to revise the Building Code. It finished its work in 1950, but the proposed regulations were never enacted. In 1960, a new committee was appointed by the Ministry of the Interior, on which the Ministry of Health had two representatives. Its work came to a halt in 1962. In the autumn of 1964, another committee, with the necessary technical and clerical assistance, started drafting a new Building Code. The Ministry of Health is represented on it. The committee has now finished the draft Code.

The adoption of a new Plumbing Code in 1959 and its publication in an attractive binding constituted an important advance in the control of the hygienic aspects of building. A joint committee of the Ministries of Health and the Interior completed the Code after several years of hard work. The Code has one remarkable feature which should be followed in any future Building Code: it is provided with an appendix of clearly-drawn scale-diagrams and sketches illustrating approved practices which may not otherwise be intelligible.

A permanent advisory committee, on which the Ministry of Health is represented, handles questions affecting the Code, approves new materials and practices and recommends amendments.

MUNICIPAL CLEANSING SERVICES, INCLUDING REFUSE DISPOSAL

There is no doubt that, during recent years, substantial improvements have been effected in these services by a number of local authorities, in cooperation with the Ministry of Health. The standard in other towns, however, still leaves much to be desired.

Local authorities, all in all, spend upwards of IL.20 million yearly on their public cleansing services.

Street Sweeping

Jerusalem, Tel Aviv-Yafo, Haifa and several medium-sized towns have recently mechanized their street cleansing service.

Overseas experience has shown that complete mechanization is impossible as long as kerbside parking at night is permitted. Partial mechanization does, however, allow the bulk of the former labour force to be transferred to other work. A limited number of men, with street orderly carts equipped with broom and shovel, can keep even the most congested areas clean if mechanical sweeping is done in the early morning. Efficient mechanical sweeping requires close cooperation with the Police. The services cannot function if cars may park night after night on the same side of the street. It will probably be necessary to forbid kerbside parking at night on busy commercial thoroughfares. On other roads, kerbside parking should be allowed only on opposite sides of the street on alternate nights.

In 1961, the Ministry set up a committee comprising representatives of Government departments, local authorities, industry and professional organizations to study the problem of domestic refuse and agree on a standard type of dustbin. The committee recommended a standard 50-litre bin, answering to a detailed specification; this was accepted by the Ministry.

In 1963, the Israel Standards Institute set up its own committee to prepare an official standard dustbin. Again, a 50-litre galvanized bin was recommended, with only a few minor changes from the provisional type recommended by the Ministry. This should safeguard the quality of materials and workmanship.

It will be necessary in the near future to examine the possibilities of introducing standards for plastic bins and, perhaps, also for sacks made of water-proof paper or polythene.

The Ministry appointed a committee early in 1963 to study the problem of the location of dustbins. Perhaps the most important of the committee's recommendations, within an agreed set of rules, was that no local authority should be allowed to issue a building permit until the method of storing the refuse and the

detailed location of bins had been accepted by the municipal health department and incorporated in the building plans.

Problems of Refuse in Tall Buildings

The storage and collection of refuse from buildings over five storeys require special measures. Such buildings are becoming more and more common in small towns as well as in the conurbations. The systems used abroad are:

1. Dry chutes;
2. Service lifts;
3. Incinerators within the building;
4. Garbage grinders on an individual flat basis or centralized system.

The Ministry has given directions to the districts, recommending dry chutes or service lifts. Incinerators are not to be approved save by special permission in exceptional cases such as dangerous waste, which cannot be removed by ordinary means. The reasons for this are risk of air pollution, the difficulty of burning refuse, which, in Israel, has twice the moisture content of European refuse and therefore requires twice the quantity of fuel, as well as the cost of special equipment needed for the removal of the burnt waste.

The Ministry's policy on garbage grinders was declared to be 'discouragement but not outright refusal'. On the one hand, garbage grinders dispose of the organic matter hygienically. On the other, water consumption rises by about 15% and the number of sewer rats multiplies.

Collection of Refuse

There is a wide variety of systems in use by local authorities. The equipment ranges from donkeys with pannier baskets and horse-drawn carts to old-fashioned side-loading trucks, and from rear-loading compression trucks to the most modern dustless-loading compression vehicles.

The districts have been largely successful in insisting on covered containers, regardless of type of transport.

An important innovation, introduced in 1961 on the initiative of the Ministry, was the commissioning of the Productivity Institute to study the economic aspects of refuse collection. The first project, financed jointly by the Ministries of Health and the Interior and the local municipality, was undertaken in Netanya. Other studies were subsequently carried out by the Institute for the municipalities of Tel Aviv-Yafo, Jerusalem, Be'er Sheva and Ashqelon. Each led to greater efficiency at reduced cost. The comprehensive reports issued

by the Institute have raised the whole problem of refuse collection on to an altogether higher plane. Up to about from 75% to 80% of the public cleansing service cost is spent on collection from buildings and on transport to disposal sites.

Disposal of Town Refuse

The inter-ministerial committee appointed by the Government in 1957 to encourage the utilization of urban refuse has been uninterruptedly active. It meets monthly, with occasional special sessions, under the chairmanship of a representative of the Ministry of Health. As it aims at the salvage and exploitation of town refuse, incineration or carrying out to sea is ruled out.

The Ministry of Health has advised, and the committee has agreed, that the two appropriate methods of disposal of town refuse for Israel are sanitary landfill or composting. A well organized and planned sanitary landfill can bring waste land back into use for agriculture, gardens, car parks, or even for building, if five years are allowed to pass before building begins and if special precautions are taken with the foundations.

There is still a regrettably large number of open refuse dumps operated by less sanitary-minded local authorities. These dumps breed flies and rats, give off objectionable odours and, at times, volumes of smoke caused by internal or accidental combustion.

Thanks to the prompting of the Ministry and the cooperation of the inter-ministerial committee, 55% of urban refuse is composted in modern mechanized plants. There is one open-type 'Dorr-Oliver' plant serving Tel Aviv-Yafo, designed to handle 480 tons of raw refuse a day. Haifa is served by a double unit 'Dano' closed-type plant, handling 140 tons a day. Nahariya, Akko and the local councils in the Haifa Bay area dispose of their refuse at a single unit 'Dano' plant capable of handling 70 tons a day.

An idea has lingered amongst some local authorities that composting refuse may be a profitable business. Wide experience in many parts of the world has shown that the sale of compost may, indeed, help to reduce a municipality's expenses. But even the most profitable process will still leave a large sum of money to be found by the local tax-payers.

Owing to the high local consumption of fruit and vegetables, the organic content of domestic refuse is twice that of European towns. Israel is, therefore, particularly well placed to exploit composting.

The inter-ministerial committee has set up an economic sub-committee to study the cost of constructing and operating plants and to recommend the amount of subsidy which should be forthcoming from the local authority after sale of the compost at a price which farmers can afford to pay.

Industrial and Other Non-Domestic Waste

In the past, local authorities have been in the habit of collecting all types of refuse together. The law only requires the local authority to collect domestic refuse. A charge may be made for collecting industrial waste, garden refuse, building materials, old furniture and such-like bulky items which cannot be composted. If damage is not to be caused to mechanized compost plants, local authorities must organize separate collections for this type of waste, and levy a charge which will cover the cost of its collection and disposal.

PREVENTION OF AIR POLLUTION

The problem of air pollution has become more severe as a result of industrial development, of the growth of cities, growing urban population density, and the marked proliferation of motor transport, with the concomitant clogging of roads by heavy traffic. The problem has become more acute with the passage of time. Air pollution, practically unknown before the establishment of the State, has become one of the most serious issues of environmental medicine and health engineering.

Public leaders and institutions, displaying understanding for the gravity of the problem, sounded an alarm as to the danger involved. Consequently, thanks to the initiative of the late Dr. Simon Kanowitz, Member of the Knesset, the Abatement of Nuisances Law was passed in 1961; it forbids the excessive emission of 'heavy or unreasonable' smoke, odour or noise and provides the groundwork for preventive action.

At the same time, the Ministry of Health sent a sanitary engineer to the United States for post-graduate study of air pollution. Upon his return, the Ministry began to give organized and concentrated attention and, insofar as was possible, priority, to the subject.

The Abatement of Nuisances Law, 1961

Even before the passage of the Law, it had been feasible to promote prevention of air pollution on the basis of certain Mandatory legislation: isolated paragraphs in laws such as the Public Health Ordinance 1940, the Trades and Industries Regulation Ordinance, section 199 of the Criminal Code, and the Factories Ordinance, 1946. Likewise, one might apply for example, section 138 of the Transport Ordinance, which deals with excessive emission of smoke from transport vehicles. The one thing that these statutes had in common was that each dealt with only a small part of air-pollution prevention. Although, here and there, violators were brought to

trial, it was usually extremely difficult to prove that a violation had taken place and the degree of its seriousness. The fines inflicted, if violation was proven, were, as a rule, negligible.

To put the new Law into effect, an inter-ministerial committee was formed, headed by the representative of the Ministry of Health; it was empowered to formulate rules under the Law. To date, the following rules have been promulgated:

1. Abatement of Nuisances (Air Pollution from Courtyards) Rules, 1962;
2. Abatement of Nuisances (Air Pollution from Transport Vehicles) Rules, 1963;
3. Abatement of Nuisances (Air Pollution from Transport Vehicles) (Hartridge Test) Rules, 1963;
4. Abatement of Nuisances (Excessive Noise) Rules, 1966.

The preparation of rules continues and the first draft of those for the abatement of noise is ready.

Because of the special nature of the offences, the determination of their degree often demands the use of delicate and precise instrumentation. Sometimes (as in the case of odours), there is no means of measurement. The formulation of the rules, therefore, takes a great deal of time.

All the same, more is being learnt about the determination of the maximum permissible concentrations of air pollutants. A preliminary proposal has already been prepared and is under consideration.

The science of air-pollution prevention is relatively young. World-wide development began only a few years ago, and the amount of knowledge which public health practitioners possess is not large. Measurement of air pollution presupposes perfected instrumentation of great delicacy, to detect materials dangerous even in low concentrations of units per million or per billion. This necessitates the establishment of a special laboratory, suitably equipped and with a staff versed in methods of chemical analysis.

From the start of concentrated interest in air pollution at the end of 1962, it became evident that a central laboratory of this kind for testing pollutants was indispensable. The laboratory is located temporarily in the Government hospital at Tel Hashomer. It is a centre for testing atmospheric pollutants on a country-wide basis and for testing environmental radioactivity. It also serves as administrative centre and base for operations.

The area of the laboratory is small, and only limited measuring can be done at present. There is a room for chemical analysis, another for radiation counting, two small offices, and a library well-stocked with the relevant literature. A detailed plan for a permanent building has been prepared, envisaging an area of 300 square metres, which should be adequate.

The main measuring equipment so far purchased is in the laboratory; place will have to be found for the other equipment that must be bought if all necessary tests are to be satisfactorily performed.

Partially to overcome the lack of space, a 'branch' of the laboratory has been set up within the Haifa Health Office, whose chief task it is to carry out air-pollution tests in the Haifa Bay area.

Air Pollution from Transport Vehicles

Under the 1961 Law, the Ministers of Health and the Interior are responsible for enforcement. When the first set of rules came into effect at the end of 1962 the Police began to serve summonses on violators. The Law defines a violation as 'smoke visible to the eye', a definition that led to summonses being served by constables who had not received a minimum of technical instruction that would qualify them to determine whether the amount of smoke visible to the eye was reasonable or not. In the course of a few days, several thousand summonses had been served on drivers, in many cases unjustifiably. This caused congestion in the courts and brought forth sharp protests from the big transport cooperatives and from other agencies connected with transportation. The protests culminated in a two-day strike of truck drivers, and the Ministries responsible for implementing the Law came under heavy fire. The upshot was a temporary suspension of enforcement by the Police and, later, the appointment of a committee that reviewed the rules and suggested changes.

Under the amendments approved and enacted, the density of black smoke was to be determined by means of an instrument manufactured by the firm of Hartridge, and the degree of permissible density was fixed as 60 'Hartridge' units. Responsibility for determining unreasonable emission and for serving summonses was left in the hands of the Police. Every driver getting a summons was given the opportunity of having his vehicle checked within 48 hours by one of the experts authorized for that purpose. If the check showed that the density of emission was less than 60 'Hartridge' units, the summons was cancelled. The idea was to give a violator the chance to check and repair his vehicle. For all the excellent intentions, however, the check-procedure was soon abused and circumvented, because owners quickly learned to adjust their motors in preparation for the test and to readjust them to the original smoke-emitting condition once they left the checking garage, anxious to gain additional power by burning more fuel.

As a result of pressure from parties with opposed interests — the National Association for Prevention of Air Pollution and Noise and the transport companies — a special committee of Ministers met from time to time to deal with the problem, and the rules were, as a consequence, amended from time to

time to permit more reasonable enforcement. But the general tendency was to ease up on the driver.

A technical committee was also appointed, with the Director of the Licensing Office as chairman, to clear up technical problems posed by enforcement. It made several proposals, which, if applied, would have improved the situation to a marked degree. Yet, although a longish interval has passed since the committee finished its work, practically no improvement has been noted. Vehicles, mainly diesel-powered, continue to pollute the atmosphere in every part of the country to a degree infinitely worse than that which prevails abroad, even in cities where the concentration of traffic is much higher than it is in Israel. A proposal was made to reduce the overloading of trucks (one of the main causes of smoke emission), but nothing has yet come of it. The same applies to the other causes of smoke emission — vehicles in defective condition and inefficient drivers. The driver whose knowledge of diesel engines is not sufficient to permit him to drive correctly is a cause that, unfortunately, cannot be checked by a 'Hartidge' test. In many cases, vehicles in good condition emit smoke only because the driver is at fault.

Air Pollution from Industry

Because officers of the Police Force did not have the necessary technical knowledge, the Ministry of Health was made responsible for law enforcement as regards air pollution from industry. This supervision requires a staff technically informed and with a comprehensive understanding of industrial manufacturing and technological processes. Since there was no such staff available in Israel, it was decided to entrust this supervision to the sanitary engineers and sanitary workers of the Health Offices, who would take special courses and get guidance from the chief engineer and any other experts, who were locally available. Three courses were organized and about 60 persons had training in them, which helped to hasten the start of supervision. Moreover, a number of engineers of the central laboratory (see above) were trained to act as advisors to the Health Offices. Upon request, laboratory personnel accompany health officers to any factory requiring supervision and inspection.

The question of industrial air pollution has grown especially acute in the Haifa Bay area, where heavy industry is concentrated, and constant activity by public and governmental bodies is necessary to prevent the situation from deteriorating to danger point.

Air pollution is a relatively recent phenomenon, and the question of how to adapt locally methods accepted abroad requires study and research.

In the central laboratory, methods for the estimation of air pollution are being worked out and surveys are being conducted, in addition to short-term

tests in factories and their precincts everywhere. A comprehensive survey of air pollution in Greater Haifa has been completed. In this survey the amount of dust in the atmosphere was calculated in fourteen different localities, and measurements were made of the concentration of harmful gases in the atmosphere. Results to date show that the extent of pollution in Haifa's atmosphere is much too high, even in comparison with cities abroad, notorious for the extent of air pollution prevailing in them.

Publications

A number of papers have been published, and these constitute almost the only available literature on the subject in Hebrew; they are being used as reference material by the personnel of Health Offices.

PROTECTION AGAINST RADIATION

The problem of radiation began to be dealt with many years ago, in connection with health risks involved in the use of X-ray apparatus. But the attempts were, in the main, individual ones, on the part of the owners of the apparatus. In Israel, work on radio-isotopes began about ten years ago when the Radium and Radio-Isotope Institute was established in the Tel Hashomer hospital. Until quite recently, problems of radioactivity were not in the domain of the Ministry of Health at all.

The legislative possibilities in the area of radio-activity were, and still are, extremely limited, both for the Ministry and for other national agencies. In practice, however, some supervision of radiation has always been feasible under such laws as the Public Health Ordinance of 1940.

A first step towards improving the legal situation was taken in 1960, when a provision was added to the Pharmacists' Ordinance concerning "radioactive agents and their derivatives", and establishing them as poisons which required permits in the same way as any other poison.

The second step was the organization of a committee to draw up proper instructions for the supervision of imported or exported radio-isotopes. These were published in April 1963. They regulate the methods of transportation, storage, import and export of radioactive materials. Although these instructions partially controlled the spread of isotopic materials, there was still no law in respect of radiation equipment. As a result of the deliberations of a special committee, an instruction was promulgated in May 1965 for surveillance of the use of radiation equipment for medical purposes: it requires that every such machine be registered and checked to ensure that no excessive radiation is given off which might be harmful to the operator or the patient.

PEST CONTROL

The Vector Control Section within the Sanitation Division of the Ministry of Health is responsible, chiefly, for the prevention of disease or nuisance caused by insects, other arthropods, rodents and related animals. A national survey was made of over 300 insecticides on the market, information about dangerous formulations was collected, and a number of previously marketed pesticides were banned. This was done in accordance with criteria set by the World Health Organization and by specialists in the field. New methods of packing and less risky ways of employing the poisons were recommended, with the proper warnings attached to wrappings. Meetings of producers were organized to clarify problems and settle the proper ways of averting hazards.

Sanitary conditions in rural areas were carefully surveyed to reduce the risks of spread of flies and rodents in cow-sheds, chicken-runs and grain-stores.

The possibility of controlling pests in food-producing plants was also investigated, and the conditions for urban pest control were checked.

Control Programmes

In 1959, a programme was instituted to eliminate flies from the resort towns (Zefat, Nahariya, Haifa, Ashqelon and others); instruction and financial aid were provided by the District Health Offices.

Other programmes were started in kibbutzim; where instructions were followed carefully, control was effective.

As for the control of household rodents, there has been a reduced use of thallium sulphates and white phosphorus, materials which are much more dangerous than the anti-coagulants recommended.

Surveys in the ports of Haifa, Tel Aviv-Yafo and Eilat point to a lessening in the number of rats. It became clear that a marked drop had taken place in the incidence of endemic typhus which is transmitted by rats; less than half the total of cases in 1959 were reported in 1964.

Snake bite and scorpion sting were investigated whenever notified. According to hospital reports, there are 100-200 cases each year. Methods of reducing the danger from poisonous animals were devised in accordance with their biology and behaviour. Poisonous wasps, spiders and centipedes were also given due attention.

As for phlebotomus (sand-flies) some new cases of leishmaniasis were reported lately, mainly in the area of the Dead Sea. Hundreds of kilograms of DDT were used and affected zones were sprayed or dusted. Similar spraying was done in Arab villages in Galilee, where cases of Kala-azar were discovered; this disease, too, is transmitted by the sand-fly.

Mosquitoes

Mosquitoes are a public nuisance which is becoming worse from year to year. In Israel, apart from the 14 species of anopheles, 24 species of culex and aedes have been identified (1). Most of them occur rarely or do not attack man, except for *Culex pipiens molestus* and *Culex univittatus*, carriers of the virus of West Nile fever. *Culex pipiens molestus* has been found capable of transmitting filariasis under laboratory conditions.

The two culex mosquitoes in question breed and develop in effluent. With the rapid growth of the population, of housing and factories, the volume of sewage has risen greatly. There are no natural river beds or lakes suitable for its disposal, and much of it pours into dry wadis or open channels, with a total length of more than 500 km. Another part of it is collected in thousands of house cesspools, which overflow from time to time because of poor ground absorption. The sewage often contaminates such natural rivulets as the Eilon, Yarkon and Lachish, the Alexander and Soreq, the Kishon and Hadera, and they have now become dangerous foci of breeding.

Culex control involves construction and maintenance of channels; destruction of vegetation in and on the banks of the channels by mechanical and chemical means; the changing of water flow in alternate directions; the use of sewage effluent for agricultural purposes; hermetic closure of cesspools; larval destruction once a week; and experiments with larvicides. In 1957-1961, a country-wide survey was carried out of all actual and potential breeding-places of culex and aedes mosquitoes (3).

Control measures are being carried out on a wide scale in Jerusalem and its surroundings, in the Dan and Shomron areas, in the Sharon Valley and in Haifa. In Jerusalem, over 15 km of a wadi with dense breeding of culex were successfully treated by Fenthion and Parathion (2) (4).

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COMMUNICABLE DISEASES

GENERAL DEVELOPMENT OF THE MORBIDITY FROM INFECTIOUS DISEASES, 1948-1966

Infectious diseases contributed largely, and still do, to the general picture of morbidity in Israel. This was particularly evident during the years of mass immigration, when hundreds of thousands of immigrants, from Eastern Europe and the Balkans, from the countries of the Near and Middle East and from North Africa, were added within a few years to the native-born and the early immigrants.

The cultural habits and standards of health of most of the early Jewish settlers were not very different from those of a Central European community, although here they were faced by the additional hazards of malaria and intestinal infections. There were also some groups which had come from Islamic countries, with lower standards of living and of health, but gradually approaching the level of the Central European community; alongside dwelt an Arab population, mainly rural, characterized by living conditions prevailing in Islamic farming communities.

Towards the end of 1948, this population had just undergone far-reaching changes, namely the withdrawal of the British civil and military authorities, the partition of the country and the War of Independence, with the tension, the damage and destruction, the suffering and the organizational difficulties bound up with these processes. Into this setting large groups of immigrants entered, each group with its own health problems, originating partly from living conditions in former countries of residence and partly from the circumstances of transit and absorption in the new country. Problems of infectious diseases or high susceptibility to such diseases were acute. Concentration camp survivors were vulnerable to tuberculosis; Yemenite Jews - to schistosomiasis mansoni and haematobium, malaria, trachoma and to tuberculosis; Iraqi Jews - to malaria and schistosomiasis haematobium; North African Jews - to trachoma, ringworm and tuberculosis. Many immigrants were undernourished and had health habits tending to facilitate the spread of contagious diseases.

Between 1948 and the early nineteen fifties, many immigrants lived in transit camps — “ma’barot” — in conditions of overcrowding and lack of sanitation. Health services, preventive and curative alike, could not always keep

pace with growing needs. Consequently, the spread of infectious diseases, along with other pressing problems such as nutrition, housing and employment, were a source of serious concern, and, though there were no major epidemics, there was a good deal of morbidity. During the later fifties, the situation improved, yet, up to the present, infectious diseases continue to contribute a not inconsiderable share of sickness in the population, especially amongst certain immigrant groups and in Arab villages.

TABLE 1

PERCENTAGES OF DEATHS AND OF HOSPITALIZATIONS, CAUSED BY SPECIFIED INFECTIOUS DISEASES, BY PNEUMONIAS AND BY GASTROENTERITIS — JEWS (1950, 1955, 1960) AND NON-JEWS (1960)¹.

	Jews			Non-Jews
	1950	1955	1960	1960
Deaths	100	100	100	100 ¹
Specified infections ²	8.6	3.6	1.9	4.5
Pneumonia and influenza	4.0	3.8	2.7	7.8
Gastroenteritis	5.2	2.6	1.5	3.8
Hospitalizations	100	100	100	100
Specified infections ²	12.0	8.0	5.3	8.8
Pneumonia	2.5	2.8	2.6	3.8
Gastroenteritis	3.4	5.1	4.2	8.1

¹ Only urban population.

² International classification of diseases No. 001—138.

Control of infectious diseases is effected in various ways.

Local sanitary control (water, production and distribution of food, sewage, garbage, insects and rodents) is generally entrusted to the local authorities, under the guidance and supervision of the Ministry of Health; veterinary services are under the supervision of the Ministry of Agriculture.

Individual protection through immunization (Table 2) is effected mainly by nurses of the Public Health Services of the Government, of the municipalities of Tel Aviv-Yafo and Jerusalem, of Kupat Holim and formerly also of the Hadassah Medical Organization. Vaccines are produced partly in Israel by the Central Laboratories of the Ministry of Health (smallpox, typhoid, rabies) or by local industry (diphtheria, tetanus, pertussis), and partly imported (poliomyelitis, tuberculosis, measles).

TABLE 2

DEVELOPMENT OF ROUTINE IMMUNIZATIONS OF CHILDREN (EXCLUDING SPECIAL CAMPAIGNS)

Disease	Age at Routine Immunization	Partially	Regularly
Smallpox	0		started before 1948
	7—8		since 1951
Tuberculosis (BCG)	0		since 1955
	13		since 1961
Typhoid	6—14	started before 1948	1949—1957
Diphtheria	0	started before 1948	since 1951
	1		since 1951
	6		since 1945
Tetanus	0		since 1955
	1		since 1955
	6		since 1955
	10		1959—1965
	14		since 1959
Pertussis	0		since 1957
	1		since 1957
Poliomyelitis			
Killed virus vaccine	0		1957—1961
Live vaccine	1		1957—1961
	0		since 1961
	1		since 1961
Measles	0		since 1966

Education in personal and domestic hygiene is provided by nurses and sanitary inspectors of the Public Health Service.

Diagnosis of infectious diseases is generally based upon laboratory tests where the nature of the disease makes this possible. Patients are hospitalized either because of an epidemiological indication (serious illness with danger of contagion in the home), or because of clinical and social indications (lack of facilities for home care); but there are no special hospitals for infectious diseases, and special wards exist in only a few hospitals. Patients are usually hospitalized in children's or internal medicine wards; only those suffering from diseases with high infectivity are kept isolated. Physicians are required to report to the authorities the occurrence of notifiable diseases in accordance with the

list as defined by law. District or sub-district Health Offices receive the notifications and keep card indexes (marginal punch cards) of the cases in their regions; they add to the data of the notifications relevant information from the records of hospitals and microbiological laboratories. In certain cases the home of the patient is visited and epidemiological investigations are conducted for the prevention of further infection, including review and completion of immunizations among contacts, the investigation of sources of infection and the discovery of additional cases. In these activities, the Health Officers are assisted by public health laboratories. From the data in the Health Offices returns are compiled, regional and national, weekly, monthly and annual. The Ordinance regulating the control of infectious diseases, with the exception of a few amendments, was promulgated before 1948. Some of its provisions are out of date, but in general it provides the Ministry of Health with wide enough powers, sometimes directly, and sometimes by allowing the enactment of amending regulations. Actually, not much use is made of this statutory instrument.

Various sources of information are used to follow the course of infectious diseases in the country. They comprise statistics of causes of death and of hospitalizations, both compiled by the Central Bureau of Statistics; returns of diseases recorded at Kupat Holim clinics and compiled by the Kupat Holim statistical department; reports on notifiable infectious diseases, compiled by the Division of Epidemiology of the Ministry of Health (the coverage of notifications differs from disease to disease, from district to district, and from age group to age group, and their reliability requires separate assessment for each disease). Besides these routine sources, additional occasional information regarding special surveys, case reports and epidemics appears in medical periodicals. As regards the Jewish population, reporting has become routine and figures given in this report relate to that population unless otherwise specified. As regards the Arab population, the information has been deficient in the past, owing to the slower organization of health services in this sector of the population; notifications of Arab deaths, with diagnoses, are statistically processed since 1959 (till 1961 only for town dwellers, that is, about one-third of the Arab population); diagnostic statistics on hospitalizations are published from 1957 onwards.

A few general features of morbidity from infectious disease during the period under review are shown in Table 1. In the following sections, and in the Tables accompanying them, developments in selected areas of disease are described, particularly in those which cause much sickness and/or those which are, to a smaller or larger degree, controllable. In the Tables, mortality figures relate to the year of notification, only since 1963 to the year of death; hospitalization figures are estimates, based on samples relating to the year of hospitalization; notification figures relate to the year of registration of notification up to the year

1953, and thereafter to the date of onset of the disease. Absolute figures are quoted in the Tables, rather than rates, because some of the numbers are very small.*

QUARANTINABLE DISEASES

These diseases are not endemic in Israel, and the usual internationally accepted procedures are adopted to prevent their introduction.

Smallpox: Minor outbreaks occurred in 1949-1950. Since then, no cases have appeared. Routine vaccination is carried out: a) in the first year of infancy, mainly at the mother-and-child health centres, an average of 60%-70% of the infants being vaccinated before the age of two, but the percentage of those vaccinated varies to no small extent from one part of the country to another; b) at the age of eight, by the school health services, coverage being estimated at 80%-90%; c) at the age of 18, during Army service. In addition, new immigrants are vaccinated, as are also especially exposed groups of workers, such as hospital and port personnel. General or regional rapid mass vaccination has been performed from time to time, either in connection with one of the minor outbreaks mentioned above, or following the actual or suspected appearance of cases in neighbouring countries. The vaccine, manufactured by the Central Laboratories of the Ministry of Health, was at one time a lymph vaccine, but in recent years has been replaced by an egg vaccine.

Exanthematic (Epidemic, Louseborne) Typhus: In addition to the occurrence of murine endemic typhus (see following section on Zoonoses), occasional cases of Brill's disease are detected by serological diagnosis. Body lice, which were occasionally found on immigrants during the period of mass immigration (1948-1951), have not been reported in recent years.

DISEASES WITH MAIN RESERVOIR IN MAN AND GENERALLY TRANSMITTED THROUGH THE RESPIRATORY PASSAGES

This group of diseases contributes the largest share to the picture of acute morbidity in infants, school children and working adults. These diseases are usually defined by their syndromes (upper respiratory infections, tonsillitis,

* More detailed information about selected diseases can be found in papers which have appeared in medical periodicals; such papers can be located through the Israel Medical Bibliography, published by the S. Syman Public Health Library of the Israel Ministry of Health.

bronchitis, pneumonia) and not by their etiologies. Specific prevention, by immunization, exists only for a few children's diseases (diphtheria, pertussis and measles), and, to a limited degree, in genuine influenza (that is, caused by the influenza viruses). Against other acute respiratory diseases, there are as yet no practical specific means of mass prevention, but the question has been raised whether the present load of mortality and hospitalization caused by pneumonia cannot be reduced, at least to some extent.

TABLE 3
COVERAGE OF CHILDHOOD IMMUNIZATIONS IN FIRST YEAR OF LIFE; JEWS AND ARABS,
1960, 1962, 1964 AND 1966

		1960	1962	1964	1966
Percentages of children for whom individual immunization records are available (including children with negative records)		72	81	87	88
Percentages of immunized among children for whom records are available	B. C. G.	57	62	64	70
	Smallpox (takes)	71	77	73	76
	Diphtheria, Tetanus, Pertussis — 3 injections	85	84	86	91
	Poliomyelitis — 2 doses ¹	(95)	(95)	88	94

¹ For 1960 and 1962 the figures are estimates because at that time campaigns and routine immunizations were carried out concurrently, in 1960 with killed vaccine, and from 1962 onwards with live vaccine.

Unspecified respiratory infections (etiologically undefined): In Table 4, some data about the frequency of these diseases are presented. In recent years, several attempts have been made in Israel to investigate the etiology in small groups of patients. It would appear that the etiology here does not differ from that in countries of Europe and America where, hitherto, this subject has been mainly studied.

TABLE 4

ACUTE RESPIRATORY DISEASE¹ (UNSPECIFIED ETIOLOGICALLY): DEATHS (D), HOSPITALIZATION ESTIMATES (H), CASES RECORDED IN THE KUPAT HOLIM OUT-PATIENT CLINICS (KH), 1950 AND ONWARDS.

	Pneumonias			Acute upper respiratory disease		
	D	H	KH ⁵	D	H ³	KH ⁵
Jews						
1950	276	1,750	8,400	4	..	222,000
1951	391	2,240	13,500	10	..	246,500
1952	416	3,030	20,700	11	1,390	304,100
1953	382	2,200	19,700	7	1,420	325,700
1954	417	3,460	26,100 ²	13	1,730	379,400 ²
1955	330	3,270	27,300 ²	8	1,680	392,800 ²
1956	403	3,320	27,600 ²	2	1,880	398,600 ²
1957	458	4,640	33,000	10	2,820	416,900
1958	383	4,400	35,200	11	2,680	435,300
1959	353	4,590	43,000	6	2,740	555,300 ⁴
1960	274	4,490	30,200	4	3,040	770,000 ⁴
1961	358	6,060	40,200	4	3,600	795,400 ⁴
1962	400	6,159	47,600	3	3,300	982,600
1963	359	5,800	36,700	2	3,760	1,044,100
1964	403	5,990	39,400	8	3,380	1,204,300
Non-Jews						
1957	..	250		..	200	
1958	..	310		..	130	
1959	20 ⁶	270		..	250	
1960	37 ⁶	410		..	250	
1961	39 ⁶	630		..	240	
1962	26 ⁶	600		..	340	
1963	119	690		..	280	
1964	131	840		..	420	

¹ Not including cases recorded as bronchitis, sore throat, tonsillitis, influenza.

² Negev not included.

³ Including influenza since 1954.

⁴ Including acute bronchitis.

⁵ Including non-Jews.

⁶ Only urban population.

Influenza: The proportion of genuine influenza, that is, caused by influenza viruses, in the total of acute respiratory illness, differs from year to year, averaging about 10% of this morbidity. 'Asian' influenza, which spread throughout

the world in 1957, attacked Israel widely, though generally in mild clinical forms, in the autumn of that year; the number of cases was estimated at a quarter of the population. Theoretically, influenza is preventable by immunization, but the practical application of this method encounters difficulties, such as the antigenic changes of the viruses, the limited period of protection afforded by this immunization, and the susceptibility to this disease, which is general and not confined to special population groups. In recent years, attempts were made to record absenteeism in selected schools and factories in the three principal cities as a possible indicator of influenza.

Diphtheria: During the early fifties, high incidence rates were recorded, up to 19 per 10,000 inhabitants in 1951 and 1952. At that time mass immunization was started, both in special campaigns and as routine procedure, administered by the nurses of the mother-and-child health centres (see Table 2); since then the number of cases has dropped. In the last few years, some 100-150 cases have been notified annually, but investigations have shown that most of them were borderline or doubtful cases, lacking the clinical findings characteristic of diphtheria, that is, they resembled usual cases of sore throat, but, because of the isolation of toxin-producing diphtheria bacilli, it is difficult to exclude them from the total number of light cases of diphtheria; some of the patients had been partially or completely immunized previously, which explains the uncharacteristic mildness of the disease in some instances. Together with the decrease in the number of cases during the period under review, and with the wider coverage of immunization, the distribution of cases by age has changed to some extent, as the following figures show:

Age in years:	0-4	5-14	15+	Total
1953	50%	37%	13%	100%
1955-56	37%	46%	17%	100%
1960-61	26%	57%	16%	100%

Pertussis: Up to the late fifties, this disease presented its classical epidemiological pattern: a 4 to 5-year cycle, with seasonal early summer peaks, generally affecting toddlers (aged 1-4 years), kindergarten children and schoolchildren in the junior classes (5-9 years). Infants were affected less frequently, but more gravely and sometimes fatally. In 1957-58, immunization against pertussis was added to routine childhood immunizations (see Table 2); since that time, the seasonal and periodic cycles have progressively declined and fatal cases have virtually disappeared. Very recently, an increase in small outbreaks has been observed, due perhaps to an antigenic change in the causative agent.

Measles: The epidemiology of measles resembles pertussis in its general pattern, except that measles, on the one hand, has a higher infectivity and pathogenicity,

and, on the other, severe cases are usually found between the ages of 6 months and 2 years and not in the first months of life, when the infant is usually still protected by the mother's antibodies. The severe cases are found more commonly among those who live in overcrowded quarters of low sanitary standards, probably because, under such conditions, children may acquire the disease earlier and the danger of secondary infections is greater. As opposed to pertussis, the epidemiological picture of measles has not altered over time, apart from a slight decline in mortality, apparently associated with the improvement in standards of living and with recourse to health services in recent years. Since 1966, measles immunization is a routine procedure (Table 5).

TABLE 5

DIPHTHERIA, PERTUSSIS, MEASLES, NOTIFICATIONS (N) AND DEATHS (D), 1950 AND ONWARDS¹.

Year	Diphtheria		Pertussis		Measles	
	N	D	N	D	N	D
1950	1,630	32	6,187	17	15,240	16
1951	2,521	55	7,740	19	1,644	11
1952	2,792	40	5,443	19	330	2
1953	1,494	15	2,373	7	554	4
1954	909	4	8,368	18	10,857	36
1955	1,384	3	10,188	15	31,709	37
1956	929	4	9,838	14	3,398	7
1957	677	1	3,242	5	9,550	15
1958	493	3	1,355	—	6,729	11
1959	315	—	6,764	8	27,066	21
1960	243	—	4,547	4	5,967	19
1961	165	—	779 ²	—	4,265 ²	5
1962	120	—	811 ²	—	19,759 ²	27
1963	144	1	509 ²	1	901 ²	37
1964	110	—	494 ²	1	6,945 ²	45
1965	64	1	48 ²	2	2,956 ²	17
1966	61 ³	..	612-3	..	8,9202-3	..

¹ Notifications and deaths till 1959 — Jews only; since 1960 — total population.

² 0-4 years only.

³ Notifications for 1966 — preliminary figures.

Rubella: This disease, which is mild by itself, presents a public health problem because of the possible damage to the embryo when women in the early months of pregnancy become infected. No reliable statistical data are available in Israel on the number of congenital malformations attributable to rubella. Nor are there statistics of the number of abortions performed because of the actual or suspected presence of rubella. Yet, every few years, these questions come sharply to the fore, either because of an epidemic of rubella or of an outbreak of a disease similar to it. Such was the case in the first half of 1962, when a wave of both rubella and, apparently, also of another disease with a similar rash, spread through Israel; the disease often affected young adults, particularly soldiers. Since the rubella virus has been isolated, it may be possible in the future to avoid problems caused by rubella, either by exposing girls to infection with the disease itself, or by immunizing them otherwise.

Streptococcal infections and their complications (nephritis, rheumatic fever and rheumatic heart disease): These infections are very common, primarily in the form of the usual inflammation of the throat and tonsils, in the form of scarlet fever, and also in some cases of otitis media. (As to inflammation of the throat, 240,000 cases of tonsillitis were reported in 1959, in the clinics of Kupat Holim alone, apart from throat infections reported among the cases of upper respiratory diseases. It has been estimated that about half the cases of these syndromes are caused by streptococci). There is still no known practical way of preventing these infections. Complications are not rare:

a) *Nephritis:* There is no clear indication, so far, regarding the proportions of the approximately 100 deaths, annually, from nephritis and nephrosis, the 500 to 1000 hospitalized cases and the numerous cases recorded in out-patient clinics, that are due to streptococcal infections.

b) *Rheumatic fever and rheumatic heart disease:* This disease is important because of its high prevalence (perhaps between 0.5 % and 2 % of the population are affected), because of the resulting disability, because it affects children and young adults, and because of the possibility of its prevention. But an evaluation of its extent and of the efforts made to combat it is not easy, because of the difficulty in making a clear diagnosis in an appreciable number of suspected cases, whether acute or chronic. An idea of the general course of this disease in the population can be gathered from the figures in Table 6. According to the impressions of clinicians, and considering rates of mortality from the acute form, the disease was more severe in the fifties than in recent years. If this inference is correct, and if larger use is made of the possibilities of prevention, a decline in mortality from the chronic form may also be expected in the future. Although there has been considerable research in this field, it is still impossible to point with certainty to any clear epidemiological characteristics of the disease,

implied by a higher number of patients amongst certain sections of the community, or the effect of specific environmental factors, other than the finding that, under poor living conditions, the disease tends to have a more serious prognosis. Basic aspects which deserve high priority in this field are:

1. Organization of regular follow-up for children in whom a reliable diagnosis of the disease has been established (periodic medical check-up and continuous antibiotic prophylaxis); in recent years attempts have been made to establish systematic follow-up by specialized out-patient clinics and through the school health services.

2. Investigation of the problem in areas where very high rates of diagnosis have been reported (up to 10% and more among school children), the extent to which borderline and doubtful cases were included in these rates, and the possibility of freeing some of such children from follow-up and restrictions imposed on them.

TABLE 6
RHEUMATIC HEART DISEASE (R. H. D.) AND RHEUMATIC FEVER (R. F.), FREQUENCY OF DIAGNOSIS
ACCORDING TO VARIOUS SOURCES, 1950 AND ONWARDS.

Year	Deaths, rates per million inhabitants*		Hospitalization estimates, rates per million inhabitants*		Cases in Kupat Holim out-patient clinics, rates per million insured**	
	R.F.	R.H.D.	R.F.	R.H.D.	R.F.	R.H.D.
1950	9	98	—	—	1,700	5,700
1951	11	100	..	..	1,800	5,600
1952	6	106	310	710	1,400	5,800
1953	5	120	290	680	1,400	5,800
1954	9	120	340	780	1,600	5,100
1955	6	96	390	770	1,300	5,100
1956	4	112	450	840	1,100	4,600
1957	8	132	510	910	1,500	4,300
1958	3	101	680	730	1,300	4,400
1959	3	102	780	900	1,500	3,900
1960	4	102	640	890	2,000	..
1961	3	95	570	790	1,800	3,600
1962	3	75	540	840	1,700	4,600
1963	1	86	690	920	1,800	3,200
1964	3	100	490	900	1,500	4,000

* The age distribution of the population changed somewhat over the years: the age group 0-14 constituted 31% of the population at the end of 1951, 33% at the end of 1954 and 35% in 1957-60.

** Cases registered during first appearance in the calendar year, without regard to whether they had been registered in previous years or not. Cases in contact with more than one physician in one year were registered by each of them.

DISEASES WITH MAIN RESERVOIR IN MAN AND GENERALLY TRANSMITTED THROUGH THE DIGESTIVE TRACT

Acute intestinal infections constitute in Israel, as in other countries, a considerable proportion of the general morbidity. Not much detailed information is available on their distribution in various sections of the population. Severe forms principally affect children living in poor economic and sanitary conditions. Most of these diseases show seasonal variations with peaks in the summer.

Particularly in the first years of the period reviewed, with its problems described in the introduction, these diseases were common and severe forms were often seen; in the course of time, mortality rates fell remarkably and morbidity rates to a smaller degree. This improvement was brought about by a number of factors, among them transfer of immigrants from camps and other temporary settlements ("ma'barot") to permanent housing with more satisfactory sanitation, absorption of immigrants into regular employment, a general rise in the standard of living, and broader and more intensive coverage of health services. Repeatedly the question has been raised and continues to be raised, whether it is possible to accelerate the decline of these diseases: in most parts of Israel, sanitary conditions have reached a stage where water, milk and food are no longer regarded as important vehicles in the spread of diseases; the significance of flies, of the use of sewage effluent for irrigation and for fish-ponds, and of bathing on sewage-contaminated sea-shores, has often been discussed, but they do not appear to be factors of much weight in the present context; the question, however, remains whether application of appropriate and efficient methods of health education may accelerate the acquisition of habits of personal hygiene and of sanitary practice in the preparation and handling of food in private and public kitchens (restaurants, schools, kibbutzim and so on).

Unspecified Gastroenteritis (etiologically undefined). This syndrome is the most common in the morbidity from intestinal infections. It may be assumed that some of these cases are caused by bacteria of the Salmonella and Shigella groups (see below) and also by pathogenic Escherichia coli in small children. But in addition to bacterial and perhaps also viral pathogens, there are other factors which influence considerably the course and progress of the disease, such as infections elsewhere in the body, disturbances in the fluid balance and the feeding habits of infants. The milder forms are encountered in all age groups, but those seriously affected are chiefly children, and to some extent old people, as may be seen from the following figures (relating to 1955-59):

Age in years	0-14	15-44	45-64	65+	Total
Mortality	84%	2%	3%	11%	100%
Hospitalization	88%	6%	4%	2%	100%

TABLE 7

GASTROENTERITIS (UNSPECIFIED ETIOLOGICALLY): DEATHS (D), HOSPITALIZATION ESTIMATES (H),
 CASES RECORDED IN KUPAT HOLIM OUT-PATIENT CLINICS (KH), JEWS 1950 AND
 ONWARDS, NON-JEWS 1957 AND ONWARDS.

	D	H	KH ²⁻⁴
Jews			
1950	370	2,380	111,000
1951	418	3,600	142,300
1952	426	5,420	143,900
1953	307	5,490	164,200
1954	293	5,840	170,900 ¹
1955	236	5,910	181,700 ¹
1956	298	7,350	189,100 ¹
1957	230	6,030	150,200
1958	174	5,450	243,600
1959	138	5,450	254,300
1960	154	7,200	369,500
1961	126	6,360	351,100
1962	190	7,765	404,900
1963	121	7,270	461,500
1964	98	6,420	456,100
Non-Jews			
1957	..	460	
1958	..	350	
1959	17 ³	590	
1960	18 ³	880	
1961	24 ³	1,030	
1962	29 ³	1,420	
1963	124	1,540	
1964	97	1,260	

¹ Negev not included.

² It is estimated that 80%-90% of these are acute cases, while the remainder are chronic cases, e. g., chronic colitis.

³ Only urban population.

⁴ Including unknown number of Arabs, mainly in recent years.

In the 0-14 age group, the majority of patients were infants and children between the ages of one and five.

TABLE 8

TYPHOID FEVER, PARATYPHOID, SALMONELLOSIS, SHIGELLOSIS, POLIOMYELITIS, INFECTIOUS HEPATITIS, NOTIFICATIONS (N) AND DEATHS (D), 1950 AND ONWARDS¹.

Year	Typhoid fever		Paratyphoid		Salmonel- losis		Shigellosis		Poliomyelitis		Infectious Hepatitis	
	N	D	N	D ²	N ²	D	N	D	N	D	N	D
1950	658	15	612	6	..		968	29	1,579 ³	202	1,139	5
1951	874	23	494	12	..		1,532	54	914	177	1,462	23
1952	969	27	615	—	..		1,972	67	874	163	990	—
1953	474	7	619	2	..		1,786	25	619	130	1,054	8
1954	440	7	243	—	475		2,604	45	697	89	1,425	—
1955	427	5	133	2	956		2,843	17	402	51	1,242	8
1956	342	5	138	2	774		2,455	24	519	45	1,154	10
1957	306	1	93	2	627		2,000	19	37	6	959	10
1958	292	1	72	1	785		2,002	13	529	49	1,518	9
1959	271	4	59	2	778		2,294	9	29	3	1,336	7
1960	339	2	46	1	852	3	2,373	13	38	4	2,776	10
1961	264	2	32	1	706	1	1,888	10	207	12	1,334	13
1962	389	2	47	—	832	—	2,551	13	18	1	2,396	14
1963	304	7	103	—	1,129	—	2,344	9	6	1	1,925	11
1964	322	9	53	—	1,206	1	2,677	6	21	—	1,748	13
1965	269	7	29	2	1,327	—	2,153	8	3	—	2,210	17
1966	286 ⁴	..	33 ⁴	..	1,574 ⁴	..	2,581 ⁴	..	10 ⁴	..	1,958	..

¹ Notifications and deaths till 1959 — Jews; since 1960 — total population.

² Paratyphoid and Salmonellosis: notifications till 1953 and deaths till 1959 — recorded together.

³ Including about 30% of non-paralytic cases in 1950.

⁴ Notifications for 1966 — preliminary figures.

Shigellosis: Notable, though not exactly known, proportions of the unspecified gastroenteritis described in the previous section are caused by shigellas. Yet, information about illness clearly recognized as caused by shigellas is necessarily confined to cases confirmed by laboratory tests, and the figures are, therefore, apt to vary with the availability of laboratory services and the degree to which these services are utilized. Notification rates seem high, 15-18 cases per 10,000 population were reported in the years 1954-1956, and, since then, rates of about 11-12 per 10,000 population have been recorded. Half the notifications relate to the 0-4 age group. The seasonal curve of the cases shows a first peak in May-June and another later. Types found are *Sh. Flexner*, *Sh. Sonne* and *Sh. Boyd.*; *Sh. Shiga (dysenteriae)* is rare in this country.

Typhoid Fever: As patients are usually hospitalized and the diagnosis is generally based upon laboratory tests, it may be assumed that the figures for this disease are much closer to the actual number of patients than is the case with shigellosis and salmonellosis. About half the patients are of kindergarten and school age, i.e., 5-14 years, and about a third in the age group of 0-4 years. At the beginning of the fifties, in the first years of mass immigration and absorption, the incidence amongst Jews was 6-7 per 10,000 population. The incidence dropped thereafter to about 1 per 10,000 in the early sixties. In the Jewish population, though, there are occasional small outbreaks in families, institutions or neighbourhoods; the majority of cases are sporadic, and epidemiological investigation has rarely revealed the source of infection, notwithstanding the wide use of laboratory tests, including bacteriophage typing of *S. Typhi* and serological Vi-tests of contacts. Among the Arabs, the rate of notification is still about 5 per 10,000. Small outbreaks in rural areas are not infrequent, and in some instances dozens of people in a village were affected, apparently as a result of water contamination. The main preventive measure was, and still is, gradually improving sanitation; in addition to this, mass immunization was carried out in 1951; it was also standard practice to immunize school children annually, as well as new immigrants, with a vaccine produced by the Central Laboratories of the Ministry of Health (at first a phenol vaccine and later an alcohol vaccine). In 1956, routine immunizations were stopped, because of the gradual decline of typhoid and also because of doubts regarding the efficacy of the vaccine. Since that time typhoid immunization (again with phenol vaccine) has only been given to communities at risk, such as a village where the number of cases had risen while the source had not been discovered. A special enquiry has been made in recent years into evaluating the effectiveness, or ineffectiveness, of the routine epidemiological investigations in sporadic cases.

Paratyphoid: Cases are not numerous. From the epidemiological view-point, this infection is similar partly to typhoid and partly to salmonellosis.

Salmonellosis (apart from typhoid and paratyphoid): This disease differs in several aspects from the other intestinal infections described so far. Reservoirs are often found in animals, and, from this point of view, it may be discussed among the zoonoses; direct transmission from person to person is less important, transmission being mainly by food; the distinction between cases of salmonella infection and of food poisoning by salmonellas is not always clear. The remarks about shigellosis, concerning the relationship between the actual extent of morbidity and the limited number of cases verified by laboratory findings, apply to salmonellosis as well. Here, also, half the number of notifications refers to the 0-4 age group, and there has been no change in the numbers of notifications in recent years. Analysis of the types of salmonella, based upon data collected during the six years 1956-1961, has shown that,

during the years 1956-1958, the type has been identified in 60% of the cases of salmonellosis, and, during the years 1959-61, in 75% of all cases. Very many types were found, the commonest being *S. Typhi-murium* (about half the cases isolated), *S. enteritidis* (11%), *S. branderup* (about 6% of strains isolated) and *S. Montevideo* (5%).

Poliomyelitis: Between 1949 and 1951, this disease progressed from low endemicity to severe epidemic proportions. The epidemic affected in the main children from 6 months to 2-3 years; case fatality rates were about 10% and between a quarter and a half of the patients were left with more or less serious disability. To handle the problems of the disabled children, suitable follow-up services (physiotherapy, surgical treatment, appliances, vocational guidance and advice to help in adjustment to limitations) have been developed by public institutions and voluntary organizations. Over the years 1951-1956, annual morbidity rates ranged between 2 and 5 per 10,000 population. With the development of the Salk vaccine, steps were at first taken to acquire it abroad and subsequently to produce it in Israel, and, at the beginning of 1957, mass immunization was instituted; taking into account the amount of vaccine available, and the age group affected, this campaign was directed to children up to the age of three and a half years. In 1957, the number of cases was low, but in 1958 the figure rose again and great efforts were made to enhance the state of immunization, at first again through special campaigns, and then as part of routine childhood immunizations. In 1959 and 1960, low morbidity was reported, between 0.1 and 0.2 per 10,000 population. At the beginning of 1961, the number of cases began to rise alarmingly, and, in contrast to the situation in the past, there was a notable rise in some Arab areas. Immunization was then changed from killed (Salk) to live (Sabin) vaccine, which was first imported for experimental use and afterwards in regular procurement. Immunization with live vaccine was also effected at first in special campaigns and then incorporated in the programme of routine childhood immunizations. Cases of poliomyelitis have been rare lately, and in each instance attempts are made to establish whether the etiologic agent is a poliomyelitis virus or some other agent which may effect an identical clinical picture. The public health problem of rehabilitation of patients from previous years still remains.

Infectious hepatitis: This disease is endemic, particularly as an autumn-winter disease. It is largely one of childhood, but also affects visitors and new immigrants from Western countries. Notification rates reported vary between 5 and 12 per 10,000 and it may be assumed that the figures represent about half of the actual morbidity. It is difficult to estimate what proportion of the cases is serum hepatitis. There are no means of mass protection, but, in special circumstances, use is made of gamma-globulin to protect contacts. Research workers in Israel are taking part in an international research project in this field.

Other intestinal viruses: From time to time, results have been published of surveys about the prevalence of these viruses amongst certain groups of children, or reports have appeared of outbreaks caused by one of these viruses, but there is no regular information about the amount of illness which is caused by them.

Intestinal parasites, worms (ascariasis and others) and protozoa (amoebiasis and others): From various surveys, as well as from scattered information on hospitalization and laboratory tests, the following approximate picture can be drawn: before the establishment of the State, some of these infections were often transmitted to town-dwellers through vegetables, grown in Arab villages, where the soil is manured with human excreta. This source of infection virtually ceased, and ascariasis and trichuriasis were no longer common infestations. Taenia (saginata) is not frequent, but cases are occasionally reported. Anchylostomiasis was endemic in some Arab rural areas and still exists there, but its impact is small; it was also endemic in certain immigrant groups (Indian, Iraqi, and others) but is gradually disappearing as sanitary conditions are not favourable to its propagation. Schistosomiasis mansoni occurred in small endemic foci, but with the pollution of rivers by urban sewage effluents the intermediate hosts, biomphalaria snails, disappeared. Among some immigrant groups two species—*S. mansoni* and *S. haematobium*—were common, and this fact for some time caused considerable concern about possible continuing propagation in the country, but because of local sanitary conditions, and perhaps also because of an incompatibility between the strains of *S. haematobium* of the immigrant carriers and the Israeli bulinus snails, the intermediate host for *S. haematobium*, there were almost no cases of new infection; only in the early fifties cases were described infected in the Yarkon river, and in the middle fifties cases infected from a pond in the Beth She'an Valley.

Amoebiasis still constitutes a complicated epidemiological problem; various sources of information provide evidence about the many cases diagnosed and treated. Even if each of these sources, examined critically by itself, may not seem fully reliable, together they form a picture of a common disease which affects hundreds, and possibly thousands, of people each year. This is not unexpected in the light of the prevalence of other intestinal infections where, likewise, the principal means of infection are direct contact or food (e.g. bacillary dysentery, infectious hepatitis, poliomyelitis). The fact that the majority of these other infections occur in childhood suggests that, in amoebiasis also, the risk of infection is not absent in childhood. Yet, whilst the other infections cause disease at that early age, amoebiasis does not appear as a common cause of sickness before adulthood, and the majority of fatal cases occur in old age. The impression is gained that, in conditions obtaining in Israel, people may become infected

with amoebiasis in childhood, and show manifest illness in adult life, and some debilitated and neglected old people may even die from it. In 1950-52, the mortality rate from amoebiasis was 8 per million per annum; it decreased gradually to 2 per million in 1958-61. In 1952-53 there were 400-500 hospitalizations per year; in 1958, according to a special inquiry, the number of hospitalizations had dropped to about 150, of which 10% were cases of amoebic dysentery, about 15% cases of hepatitis, with or without liver abscess, while the remainder were cases of amoebiasis without further specification, probably most of them amoebic colitis. In the middle fifties, rates of about one case of amoebic dysentery, and about 8 cases of chronic amoebiasis, per 1,000 insured members, were registered annually in the out-patient clinics of Kupat Holim. Although the described combination of data from different sources is taken as an indication of the prevalence of amoebiasis in Israel, the shortcomings of these sources cannot be overlooked. It is, therefore, important, in order to gain a better understanding of this health problem, to improve the statistical instruments which are available, to standardize the laboratory diagnosis, and to study, by special surveys, the relationship between positive laboratory findings, complaints and clinical findings which can be attributed to this infection, and the administration of anti-amoebic treatment.

TABLE 9

OUTBREAKS (O) AND CASES (C) OF FOOD-POISONING, BY PRESUMED AGENT, 1958 AND ONWARDS¹

Year	Total		Staphylococci		Salmonellae		Other Bacteria		Not Known	
	O	C	O	C	O	C	O	C	O	C
1958	67	2,699	..	..	..	..	..	..	..	..
1959	72	1,929	21	452	25	1,227	10	99	16	151
1960	42	1,366	14	281	19	887	3	37	6	161
1961	39	719	15	260	13	183	1	65	10	211
1962	70	1,748	19	515	21	440	8	340	22	453
1963	100	2,069	31	907	26	404	4	194	39	465
1964	48	1,568	9	185	11	578	5	140	23	665
1965	88	2,115	..	..	..	..	..	..	..	..
1966	82	2,065	..	..	..	..	..	..	..	..

¹ Till 1960 — Jews; since 1961 — total population.

Microbiological food poisoning: This is apparently not at all rare, but it is usually notified only when a group of people is suddenly attacked, such as a family, a group of workers eating in a factory canteen, a kibbutz, or a number of persons partaking at a festive meal or a party. But even such events are not always notified, and it is difficult to estimate to what extent the numbers in Table 9 reflect the true position. Only since 1958 has uniform notification been instituted for these outbreaks and, therefore, only from then on do data exist which can be processed for the country as a whole. Known local agents are staphylococci and salmonellae. No cases of botulism were notified during the period under survey. Cases caused by clostridia have only been reported lately and infrequently, but it is not known whether this rarity is due to the relative unimportance of clostridia as a factor in food-poisoning in Israel, or to reasons of laboratory technique.

ZOONoses TRANSMITTED BY CONTACT, FOOD OR INSECTS

During the period under review, that is, 1948-65, conspicuous changes took place in animal farming, for example the extension of sheep, goat and cattle herds through local raising and through import of animals, the expansion in raising fowl of various kinds, and a decline in the use of draught animals. It is most probable that, together with the many ecological changes, such as the

TABLE 10(A)
RABIES — CASES IN MAN AND ANIMALS, 1950 AND ONWARDS.

Year	Cases of Rabies in Man	Cases of Rabies in Animals					
		Total	Dogs	Jackals	Cats	Sheep, Cattle, Horses, Donkeys, Camels, Pigs	Others
1950	—	72	40	6	5	20	1
1951	—	10	8	1	—	1	—
1952	—	11	8	—	—	3	—
1953	—	13	12	1	—	—	—
1954	3	109	94	6	1	8	—
1955	2	282	198	16	2	66	—
1956	2	223	148	20	9	45	1
1957	1	127	66	7	4	50	—
1958	—	37	25	1	1	10	—
1959	1	50	37	1	4	8	—
1960	1	59	24	1	1	31	2
1961	—	39	20	—	—	18	1
1962	—	15	4	1	1	8	1
1963	—	21	1	—	—	20	—
1964	—	42	23	1	1	17	—
1965	—	67	26	1	—	40	—

expansion of settlement and acreage of farm-land, the drainage of rivulets and swamps, and utilization of their waters for irrigation and fish-ponds, the collection of flood-waters in reservoirs, the afforestation of extended areas, there have also been concomitant changes in the population of wild life, such as birds, rodents, jackals and foxes, and of semi-wild animals, such as stray dogs, cats and rats. These changes, whether direct or indirect results of human activities, probably altered the distribution of agents of infectious diseases common to man and other vertebrates.

TABLE 10(B)
RABIES — PREVENTIVE MEASURES, 1950 AND ONWARDS.

Year	Number of stray dogs destroyed	Prophylactic treatment *				
		Bitten persons reporting to Health Offices	Persons starting active immuni- zation	Persons receiving full series of active immuni- zation	Complications following immunization	
					Cases	Deaths
1950	4,072	1,950		515		
1951	5,118	2,490		480		
1952	7,310	4,040	1,230	570	1	
1953	12,511	5,420	1,270	590	1	
1954	36,678	7,340	1,885	800	3	
1955	45,573	8,000	2,500	1,004	5	2
1956	30,369	8,150	2,350	1,735	4	1
1957	23,430	7,300	2,130	1,280	—	—
1958	20,884	7,200	1,500	980	2	1
1959	22,730	6,950	1,455	900	3	—
1960	22,252	7,810	1,560	1,170	1	—
1961	20,929	7,570	1,370	1,135	2	—
1962	18,931**	7,920	1,280	1,040	1	—
1963	19,096**	8,010	1,440	1,190	2	—
1964	18,311**	7,810	1,400	1,140	1	—
1965	26,917	7,000	860	620	3	—

* Round numbers.

** Furthermore, destroyed cats: in 1962 — 5,729
in 1963 — 5,369
in 1964 — 9,152

Rabies: The disease is endemic in the Near East, and, owing to the nature of its borders, Israel constitutes, in regard to an infection like rabies, together with its neighbours, one part of a wider ecological region. During the years 1948 to 1950, the incidence among animals seemed to increase, either owing to the fact that certain regions were left abandoned for some time, or to other ecological factors; at the same time, 13 cases occurred in man. Thereafter, perhaps because of certain measures such as destruction of stray dogs, laying of poisonous baits for jackals, immunization of pets, or because of some other changes in the

population of vector animals, cases in animals declined and no cases occurred in man. The middle fifties showed a new rise in the number of affected animals, and cases reappeared in man. In recent years, only cases in animals have occurred, particularly in border areas in the north and the south of the country. Prophylactic treatment following animal bites is centralized in the District and sub-district Health Offices (Table 10b); as many as 8,000 bitten people apply each year, about 15% of them get active immunization (Semple's vaccine, or duck embryo vaccine); serum is administered in certain circumstances. Most of those who start getting the vaccine are given a full series of injections, often because the biting animal has not been found. In view of the not negligible risk of complications from vaccination, the importance of restricting vaccinations to cases with sufficient indication has been stressed repeatedly. Measures against the disease in animals, such as destruction of jackals and stray dogs, and immunization of pets, are taken by the Ministry of Agriculture and by local authorities, but, owing to financial limitations, these measures are not as widely applied as is desirable.

Brucellosis (Undulant Fever): Cases occur partly through contact with infected animals and partly through consumption of infected foodstuffs, mostly home-made cheese that is produced in small quantities from goat or sheep milk. The two causative organisms, *B. abortus* and *B. melitensis*, are found in Israel. In the majority of human cases, diagnosis is made by serological tests, and no reliable differentiation has been established between the two agents. It may also be presumed that, because of the variegated clinical characteristics, not all persons suffering from brucellosis are diagnosed as such. Advances in veterinary measures against *B. abortus*, by immunization of herds and slaughter of infected animals, and by pasteurizing milk for human consumption, largely reduced the danger from this infection, though the risk has somewhat recurred with the extension of raising cattle for meat consumption. The majority of cases are probably caused by *B. melitensis* and the danger of this infection has given more cause for concern than that of *B. abortus*, in part because of the higher pathogenicity of *B. melitensis*, in part because of difficulties in the control of the infection in sheep and goats, and also because of the expansion of sheep-breeding in immigrant villages during the fifties; this expansion brought with it an active commerce in flocks, with transfer of infected livestock to areas where the population has not hitherto been exposed to brucellosis. Indeed, especially during the middle fifties, several rural outbreaks occurred which did not subside until the local herds of infected sheep had been slaughtered. In recent years, the annual number of notified human cases has fluctuated between 20 and 60.

Leptospirosis: Organisms found in Israel in human patients and in affected domestic animals are *L. grippityphosa* (70%-80%) and *L. canicola* (10-20%) and, more rarely, a few cases of *L. icterohaemorrhagiae*, *L. pomona*, *L.*

hebdomadis and others. The main reservoir of infection among wild animals is the field vole (*Microtus guentheri*), but leptospira have been found in other animals, such as hedgehogs. Among domestic animals, leptospira have been found in goats and cows, sometimes causing severe damage to such livestock; they have been found in dogs and pigs, too. Humans affected are usually farmers coming into contact with moist soil infected by the urine of voles and other animals. In 1949-1950, a serious outbreak occurred in the Sharon and in the northern Shefela (central coastal plain), 450 cases being diagnosed, apparently in connection with an unusual proliferation of voles. Later the number of cases decreased to a few dozen per annum; these, too, were mainly in the same region as the former outbreak. In recent years there has been a slight increase in other areas, such as the Yizre'el Valley and especially the Hula Valley, including a conspicuous outbreak of about 40 cases in one village in 1962. However, the disease has not recurred in epidemic proportions sufficient to warrant large-scale preventive measures (See Table 11).

TABIE 11

BRUCELLOSIS, LEPTOSPIROSIS, TYPHUS (MURINE), NOTIFICATIONS (N) AND DEATHS (D), 1950 AND ONWARDS (1).

Year	Brucellosis		Leptospirosis		Typhus (murine) ²	
	N	D	N	D	N	D
1950	25	—	96	2	598	3
1951	30	1	29	1	793	2
1952	..	—	27	—	739	3
1953	32	—	26	1	525	—
1954	49	—	25	—	308	4
1955	48	—	21	2	349	—
1956	25	1	13	2	251	—
1957	114	—	27	2	170	—
1958	51	—	22	2	205	—
1959	37	—	16	1	173	—
1960	23	—	23	1	144	—
1961	24	—	47	—	89	2
1962	23	—	81	1	87	—
1963	19	—	26	—	79	—
1964	60	—	58	1	80	—
1965	20	—	52	2	59	1
1966	21 ³	..	20 ³	..	84 ³	..

¹ Notifications and deaths till 1959 — Jews only; since 1960 — total population.

² Including a few cases of Brill's disease and other rickettsiosis (Fièvre Boutonneuse).

³ Notifications for 1966 — preliminary numbers.

Salmonellosis: See p. 49.

Echinococcosis: Over a hundred hospitalizations are registered annually, but this figure includes recurring admissions. It seems that about half the cases were infected abroad and about half in Israel, in the sheep-rearing areas of the Negev and Galilee.

Q-Fever: The infection exists in Israel, occasional cases or small outbreaks having been noted in particular in the central region of the country, but its relative importance amongst the fevers of unknown origin is not known.

West-Nile Fever: During the fifties, there were widespread outbreaks of fever, some cases presenting rash and lymphadenitis. The outbreaks occurred mainly in the Sharon, but sometimes also in the Shefela. The organism responsible, the virus of West-Nile Fever, is apparently harboured by wildfowl and transmitted by the culex mosquito. The sudden emergence of the outbreaks and their subsequent decline have remained unexplained. Nor is it known what is the share of this organism in the etiology of the many cases of fever of unknown origin. Recently, a serological survey in some villages in the Sharon has shown the continuing existence of this infection.

Ornithosis: This infection is found in Israel, but its importance in human morbidity is not known.

Relapsing Fever: This is transmitted by ticks (*Ornithodoros tholozani*) found in caves and, at times, in ruins. A few dozen cases are notified annually, including Bedouin who enter caves in the winter to shelter from wind or rain, and youth on excursions in the summer who go into the caves for rest or out of curiosity. From time to time action is taken to inform the public about the danger of entering caves, and signs are posted at the entrances to caves known to be infested by ticks that transmit the disease.

Leishmaniasis: The two types, kala-azar and cutaneous leishmaniasis, are known in Israel, but cases are few. Cases of kala-azar, nearly all in children, are from Arab villages in the Akko sub-district, and along the border in the Hadera and Sharon sub-districts. Cutaneous leishmaniasis was also found in the Haifa area in the past, but disappeared there, presumably because of the large use of insecticides; nowadays, all such infections are traced to the Arava, amongst settlers and visitors there.

Endemic Murine Typhus — Rats, the potential reservoirs of this infection, are found all over the country, but the fleas (*Xenopsylla cheopis*) which transmit the disease are prevalent only in rats of the coastal plain, and there rats infected with *Rickettsia mooseri* are to be found. Up to 1953, 500-800

human cases were notified annually. Since then, the number of cases has declined to less than 100 annually in recent years, either because of measures taken to destroy rodents, or as a result of DDT spraying of cracks and holes against fleas, or for other unknown ecological reasons. (Table 11.)

SELECTED DISEASES NOT INCLUDED IN PREVIOUS SECTIONS

Encephalitis and Meningitis: These syndromes, both of which affect the central nervous system, and which are not always clearly distinguishable, are discussed here together. They are caused by a wide range of bacterial and viral organisms. Approximately 60-90 deaths are registered annually, about two-thirds of them in the first five years of life. Hospitalization figures are between 400 and 600 annually, and it may be assumed that, in the circumstances of the Israeli health services, almost all cases in the Jewish community are hospitalized; progressively this is also done in the Arab community. About half the cases are in the age group of 0-4 years, and about one-third are in the 5-14 year group. It appears that children from large families, living in grossly overcrowded conditions, are infected at an earlier age than others, and that the risk of severe bacterial infections is higher in such circumstances. The etiology of these diseases is known only in a relatively small number of cases. In an analysis of notifications in 1954-1959, it was found that about one-third of the cases were bacterial in origin; the bacteria were, notably, the meningococcus, the pneumococcus and haemophilus influenzae; the vast majority of these bacterial cases were in the 0-4 age group. About 10%-15% of the cases notified over 1954-1959 were connected with mumps, mainly children in the 5-14 age group; 3% were complications of measles; and isolated cases were diagnosed as related to the West-Nile virus, or to various enteroviruses. About half of the cases notified in these years appeared to be of unspecified viral etiology. In the early 1960's, a survey was carried out with a view to investigating some of the epidemiological and etiological questions in this area.

Tetanus: This disease has never reached major proportions in Israel, but, because of the high mortality, of complications associated with prevention based on passive immunization (anti-tetanus serum after injury), and of the ideal opportunity for prevention with active immunization, its control is included in the scope of the public health services. At the beginning of the period under review, about 20 notifications per million of the population were reported per annum. Since then, the number has declined and, in recent years, very few cases have been notified. Those affected were principally from groups known to be vulnerable, farmers and children. At the beginning of the period, about half of the cases were of tetanus neonatorum, contracted after home delivery in ma'barot (temporary immigrant camps) and Arab villages. Now, thanks

to the almost universal practice of hospital delivery, tetanus neonatorum has disappeared amongst Jews, and it is also gradually dwindling amongst Arabs with the rise in the number of Arab hospital deliveries. Since the middle fifties, active immunization against tetanus is included in the routine childhood immunizations, and, in 1959-60, extensive campaigns were carried out in schools to complete immunization of children who had not had it when they were younger. Following these measures, a slow decline in the use of anti-tetanus serum has recently been perceived.

Trachoma: At the beginning of the century, this disease was common in the country. With the development of the health services of the Jewish population in the nineteen-twenties and thirties, its frequency diminished, but it remained endemic in the Arab population, particularly in rural areas. Following mass immigration from the Near and Middle East and North Africa, thousands of patients were seen again in early stages of the disease (principally children) and thousands in late stages, i.e., varying degrees of blindness and trichiasis (mostly adults). The starting point for trachoma control in Israel is generally detection in schools; thereafter, the families of affected children are examined and the patients are treated, usually by the public health services.

Ringworm (Tinea): The organism found most commonly locally and amongst immigrants is *Trichophyton violaceum*. Cases of favus are very rare. At the beginning of the century, the condition was common among children. Here, as in other fields, the progressively developing health services in the Jewish community achieved far-reaching control of this condition during the twenties and thirties, but it remained common among the Arabs. At the time of mass immigration from the Near and Middle East and North Africa, many immigrants were found with this infection, nearly all of them children, but sometimes also women, who had retained, from infection in their childhood, small latent foci. The condition is very mild, without pain or limitation of activity, and nearly always disappears during adolescence. Nevertheless, a great deal of attention has been paid to it by the health services, because of the social stigma attached to it. The control measures include detection examinations in schools, examination of families of infected school children, and systematic treatment. Treatment in the fifties was by X-ray epilation, followed by application of iodine tincture to the epilated scalp. Many of the cases were treated in a camp set up for the purpose, where the children were kept for from six weeks to two months till the termination of treatment. Much effort was put into these activities and this control system was difficult and costly. In 1957-1959 various aspects of this condition were investigated through epidemiological surveys. With the appearance of publications on the treatment of fungus infections with griseofulvin, field trials were carried out and the old treatment was then suspended. Today, the infection is still found in some Arab districts and amongst

some immigrant groups; case-finding is followed by treatment with griseofulvin, large quantities of which have become available through a grant of UNICEF.

Staphylococcal infections: These produce various morbidity conditions, and it does not appear that the picture in Israel differs in this respect from that described in the medical literature as regards other countries. These conditions include the common skin infections treated ambulatorily by general practitioners and dermatologists; food poisoning by staphylococcal enterotoxin; infections as complications of other disease. Infections in hospitals are a special problem. There are no reliable data, at present, for a systematic evaluation of the extent of infection and the degree of 'additional morbidity' caused by staphylococcal infection acquired in hospitals, either among patients during hospitalization and after their discharge, or among their contacts at home. From sporadic surveys, it appears that this problem here also resembles that in other countries, in both its character and its extent.

Hospital infections other than staphylococci: As is the case with staphylococci, there are not sufficient data. Only from scattered information is it known that the problem exists; in recent years steps have been taken in an attempt to elucidate it.

TUBERCULOSIS

Historical references to tuberculosis in Palestine are lamentably few. M. MacLennan, Senior Medical Officer of the Department of Health in Mandatory Palestine, surveyed the problem in 1935. According to him, there was at that time a population of 750,000 Moslems, 175,000 Jews, 91,000 Christians, 10,500 Druzes and Bahais and 6,600 Bedouin. Table 1, published by the Mandatory Administration, gives the mortality rate from tuberculosis for the seventeen main urban centres, between 1930 and 1934.

TABLE 1

MORTALITY FROM TUBERCULOSIS IN THE 17 MAIN URBAN CENTRES OF PALESTINE, 1930 - 1934

Year	Population of Seventeen Main Urban Centres	Deaths from Tuberculosis	
		Number	Rate per 100,000 Population
1930	360,626	173	48.0
1931	360,626	188	52.1
1932	370,863	185	49.9
1933	404,921	234	57.8
1934	471,599	236	50.0

According to MacLennan's survey, the mortality in Palestine equalled that in England; of the three main religious communities, the highest mortality and morbidity were among the Moslems. He noted the high prevalence of extra-pulmonary tuberculosis amongst the Moslems, which accounted for 25% of all deaths from the disease, while 22.5% of all victims were suffering from both extra-pulmonary and pulmonary tuberculosis. The low prevalence of extra-pulmonary tuberculosis amongst the Jews was in contrast.

In spite of MacLennan's conclusions on the epidemiological situation and his recommendations for improvements, the Mandatory Administration did not take action as required. In fact, there was no preventive work at all, then, in respect of tuberculosis. The only Government facilities for tuberculosis were 16 beds in Zefat, and 30 in the Government hospital in Haifa. Wealthy tuberculous Arabs went for treatment to the Lebanon, while the poorer ones were neither hospitalized nor segregated.

The Jewish population tried to overcome this absence of Government control programmes by voluntary effort. In 1923, a group of Jewish doctors founded the Anti-Tuberculosis League, which set up chest clinics in Jerusalem, Tel Aviv, Haifa, Tiberias and Petah Tiqwa. Hadassah established the first tuberculosis hospital in Zefat, and, in 1934, the 'Mekor Haim' hospital (45 beds) was opened by the League in Jerusalem. Kupat Holim also opened a number of chest clinics and hospitals, such as Beit Loewenstein in Magdiel and the Ra'anana hospital.

The establishment of the State brought about a radical change in attitude and approach to the problem. A Tuberculosis Division was established in the Ministry of Health, as the central authority for the coordination of tuberculosis control, including hospitalization.

With the beginning of large-scale immigration, it became evident that there was a high prevalence of tuberculosis among the immigrants. Screening for tuberculosis was carried out with respect to all immigrants. In one instance, results of fluoroscopic examinations of 288,190 immigrants carried out in the reception camp of 'Sha'ar Ha'aliya' provided evidence of tuberculosis in 4% of those examined; 0.53% suffered from active tuberculosis, 0.72% were of doubtful activity. It was estimated that, of the arrivals during 1948-1951, 4,349 were in need of hospitalization for tuberculosis and about 30,000 required medical supervision.

The epidemiological situation in the first years of the State was characterized by the rapid growth of the Jewish population and the mass influx of Jews from countries with — at that time — a high tuberculosis mortality, such as Poland, Rumania, Greece, Bulgaria and the Arab States. The epidemiological situation was made more complex and severe by the entry of a considerable

number of persons who were in a poor state of health generally, after their experiences in World War II, and of others, such as the Yemenites, who had undergone great hardship in the process of immigration.

Immigration, as has been pointed out, was unselective and sufferers from all types of diseases, including destructive forms of tuberculosis, were knowingly admitted. In addition, social and economic conditions were not favourable; there was much overcrowding in tents, huts and houses, and there were shortages of food. The percentage of non-reactors to tuberculin among children and adolescents in the settled population was high, while many contagious cases kept on entering. This situation was dangerous, and it was feared that tuberculosis might spread on a large scale. The Government, therefore, gratefully accepted the offer of the International Tuberculosis Campaign (a joint enterprise of Scandinavian humanitarian organizations and UNICEF) to initiate country-wide BCG vaccination.

Incidence

The incidence of active pulmonary disease is still an index in evaluating the trend of the disease. Owing to the fact that immigrants are examined on arrival, the Ministry is in possession of data relative to period of immigration. Data on incidence for the Arab population relate to a later period.

The morbidity picture is not dissimilar in the Jewish and the non-Jewish populations, except for the Bedouin tribes; the difference which appears in incidence is chiefly due to the extent of case-finding activity carried out among them. Since the beginning of 1959, a special screening unit has been active in Be'er Sheva, endeavouring to cover all Bedouin encampments with the aim of detecting the illness as early as possible, preventing its spread and supervising known cases. The result of this activity is evident in the curve of newly detected cases in recent years (Figure 1, Table 2).

TABLE 2

NEWLY REPORTED CASES OF ACTIVE TUBERCULOSIS OF ALL FORMS,
JEWS AND NON-JEWS, 1952 - 1965

Year	Jews		Non-Jews*	
	Number of cases	Rate per 10,000	Number of cases	Rate per 10,000
1952	1,518	10.5		
1953	1,591	10.7		
1954	1,202	7.9	109	5.8
1955	1,042	6.7	108	5.4
1956	893	5.4	119	5.9
1957	1,027	5.8	89	4.2
1958	874	4.9	132	6.0
1959	761	4.1	160	7.0
1960	757	4.0	146	6.1
1961	744	3.9	144	5.9
1962	774	3.7	178	6.8
1963	555	2.6	127	4.6
1964	680	3.0	113	3.9
1965	663	2.9	69	2.3

* The apparent rise of incidence among non-Jews since 1958 is a result of the intensified activity of a special team for early case-finding among the Bedouin tribes.

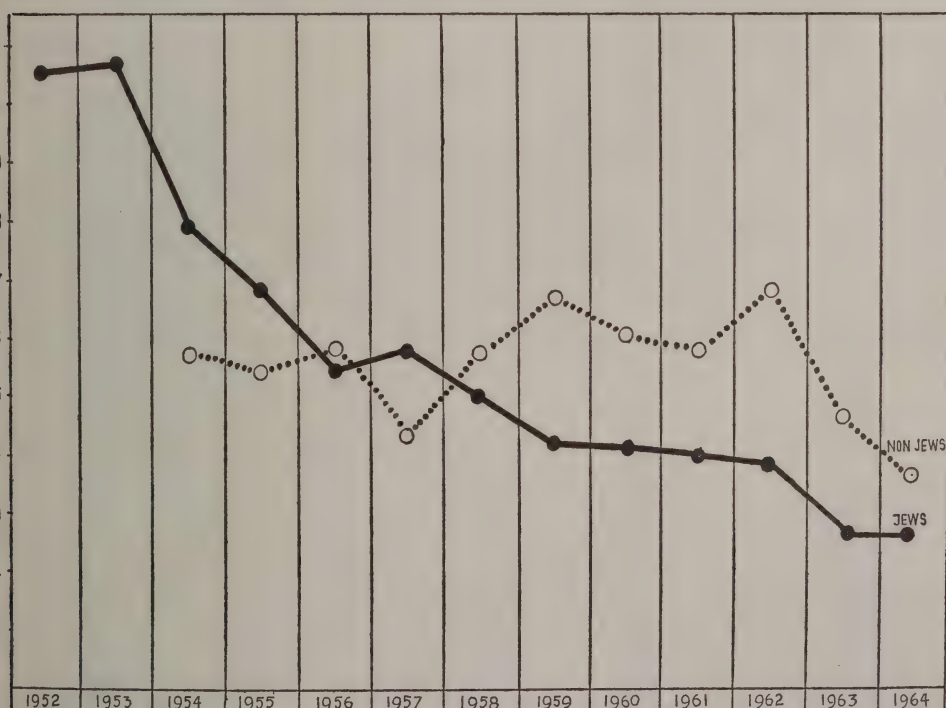


Figure 1. Newly Reported Cases of Active Tuberculosis of All Forms,
Jews and Non-Jews, 1952-1964, Rates per 10,000

In 1962 and 1963, as is evident from Table 3, there was a higher percentage of detection in initial stages of the illness than in previous years.

TABLE 3

EXTENT OF DISEASE AMONG JEWS IN NEWLY REPORTED CASES OF
UNSTABLE PULMONARY TUBERCULOSIS IN SELECTED YEARS; PERCENTAGES

Extent of disease	Year				
	1952	1955	1957	1962	1963
Minimal	5.3	4.1	6.0	13.6	11.0
Moderately advanced	63.7	56.3	56.2	57.7	63.0
Far advanced	18.9	21.8	22.1	17.7	20.0
Extent undetermined	12.1	17.8	15.7	11.0	6.0

Table 4 shows that tuberculosis among Jews diminishes in infancy and also among adults, although not to the same extent. As regards the Arab population, the higher rate of morbidity in 1963 should again be attributed to the extensive case-finding among Bedouin; a relatively large proportion of these cases are extra-pulmonary.

TABLE 4

NEWLY REPORTED CASES OF ACTIVE TUBERCULOSIS OF ALL FORMS,
BY AGE; JEWS AND NON-JEWS; RATES PER 10,000;
1952, 1957, 1963

Age	Jews			Non-Jews	
	1952	1957	1963	1957	1963
0-4	4.1	2.7	0.9	1.6	3.3
5-9	3.5	2.2	0.9	2.9	1.5
10-14	4.4	1.9	0.6	2.5	1.9
15-19	6.6	3.5	1.3	6.1	4.5
20-24	12.9	5.5	1.9	3.9	6.2
25-29	16.6	6.5	2.1	5.0	4.2
30-34	14.1	7.1	3.4	13.5	5.5
35-39	12.4	8.1	3.3	2.2	11.8
40-44	12.7	10.1	4.2	5.7	7.7
45-49	15.0	7.9	4.7	13.5	6.0
50-54	15.4	8.9	2.7	5.5	8.3
55-59	15.9	8.5	4.8	1.7	10.8
60+	14.1	12.2	6.6	2.4	8.8
All ages	10.5	5.8	2.6	4.2	5.2

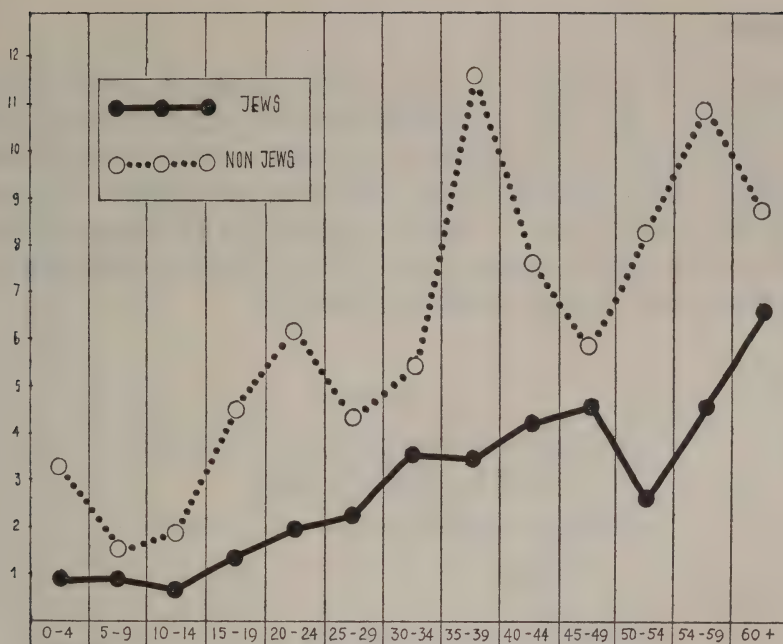


Figure 2. Newly Reported Cases of Active Tuberculosis of All Forms, by Age; Jews and Non-Jews; 1963; Rates per 10,000

Prevalence

The number of tuberculosis cases, unstable, quiescent and arrested, registered by the end of 1963, was over 13,000, of which 12,250 were pulmonary. This figure does not include cases which show no signs of activity over a period of five years and are defined as 'recovered'; the total of such cases is not negligible: in each of the last few years, over 1,000 persons were taken off the list.

In 1965, steps were taken also to record in the Central Register 'recovered' cases with lesions of defined significance. The purpose of this is to intensify supervision over a group of the population which is susceptible to relapse and capable of infecting other persons.

Table 5 shows the distribution of cases of pulmonary tuberculosis, registered at the end of 1963, according to the stage of the disease.

TABLE 5

CASES OF PULMONARY TUBERCULOSIS ON THE CENTRAL REGISTER BY STAGE OF DISEASE, AT THE END OF 1963; JEWS AND NON-JEWS; NUMBERS AND RATES PER 10,000

Stage of disease	Jews		Non-Jews		Total	
	Number	Rate	Number	Rate	Number	Rate
Unstable	1,217	5.6	374	13.6	1,591	6.5
Quiescent	2,726	12.6	278	10.1	3,004	12.3
Arrested	7,337	33.9	318	11.5	7,655	31.5
Total	1,280	60.0	970	35.4	12,250	50.0

Mortality

Mortality has ceased to be a yardstick for assessing the extent of tuberculosis in Israel, it can only give some idea of the level of medical care services. Few of the sufferers die of tuberculosis as the direct or as a contributory cause; the majority die of causes that have no relation to tuberculosis. The mortality figures are based on death certificates; reliable data on causes of death are obtained from hospital records, results of post-mortem examinations, and notifications from the chest clinics. (See Table 6.)

TABLE 6
MORTALITY FROM TUBERCULOSIS, JEWS, 1950-1965;
RATES PER 100,000 POPULATION

1950	14.5
1951	18.3
1952	13.3
1953	10.5
1954	9.1
1955	7.3
1956	6.1
1957	5.1
1958	3.6
1959	5.5
1960	3.2
1961	3.6
1962	4.0
1963	3.3
1964	3.2
1965	2.8

To assess tuberculosis mortality, account has been taken of fatalities where tuberculosis was the direct cause or a contributory cause, like in cases with cor pulmonale, severe fibrosis, conditions after lung resections due to tuberculosis and the like.

Mortality from tuberculosis has diminished in all age groups and has reached vanishing point in infancy. Many patients with active tuberculosis attain the age of 70 and more.

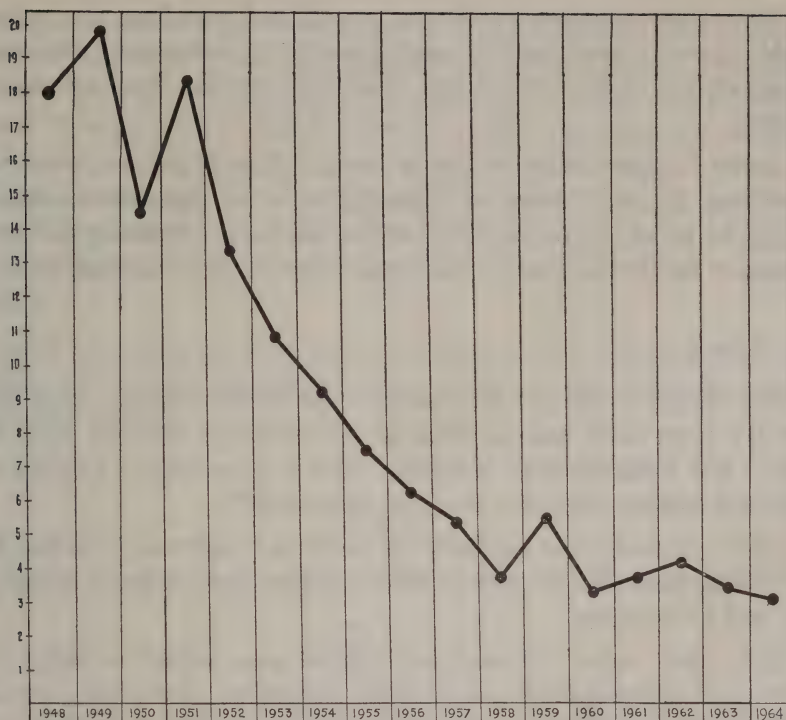


Figure 3. Mortality from Tuberculosis, Jews, 1950-1964;
Rates per 100,000 Population

ORGANIZATION OF SERVICES

The Central Register

Systematic preventive measures such as BCG vaccination, regular check-up in chest clinics, chemotherapy and other measures eventually brought about a reduction of both tuberculosis morbidity and mortality. Nowadays, every diagnosed case of tuberculosis, whatever its type, must be notified to the Division of Chronic Diseases and Rehabilitation and to the District Health Office. The Division is the designated authority for planning, organizing and coordinating all measures to combat tuberculosis. Persons affected by tuberculosis are given comprehensive treatment free of charge, including rehabilitation.

The Division keeps a central register of all notifications, enabling evaluation and surveillance of fluctuations in the epidemiological situation over the years and among different groups of the population. It is, thus, an important instrument in the planning and organization of preventive services. Registration of cases of lung tuberculosis seems to be satisfactory, while that of extrapulmonary cases is incomplete.

The register contains mainly persons affected with lung tuberculosis in unstable, quiescent and arrested stages; persons in a recovered state were at first excluded from registration, but, from 1965 onwards, they are also being registered.

As the treatment is given free of charge, there is practically no private tuberculosis practice. Almost all affected persons are registered at one of the chest clinics which cooperate fully with the Ministry, submitting the required information for the completion of the register and its practical application.

Chest Clinics

The country is covered by a network of 18 chest clinics. They operate under the supervision and guidance of the Ministry's Division for Chronic Diseases and Rehabilitation. Naturally, there is close contact with the social welfare and medical care services of the community.

All the clinics are well supplied with the latest equipment, including photo-fluoroscopes using 70 x 70 mm or 100 x 100 mm film, ordinary X-ray apparatus, and tomographs.

Each clinic serves a defined geographical area, the service being free of charge: it is comprehensive and includes prevention, case-finding, treatment, follow-up and rehabilitation. The staff of a clinic consists of a doctor, public health nurses, a social worker, an X-ray technician, and administrative and clerical personnel.

The clinics had, at the start, been financed by the Government, Kupat Holim, the American Joint Distribution Committee and the Anti-Tuberculosis League; the League made most of the buildings and equipment available. Now, however, the main financial burden is borne by the Ministry of Health.

In 1949, BCG vaccination of the different sections of the population began. Until 1959, infants were vaccinated a few days after birth, schoolchildren at the age of 6, and at the age of 13. Since 1959, inoculation of schoolchildren in Grade 1 has stopped, but that of infants and of Grade 7 schoolchildren continues. Inoculation of children is not obligatory, but has been accepted by all sections of the population. The Centre for the Prevention of Lung Diseases in Yafo is exclusively responsible for guidance in the use of BCG and its supply. It also serves as a demonstration centre and it operates an ambulatory photo-fluoroscope for special groups in different localities, in conjunction with local clinics.

Hospitalization

The tuberculosis patient gets most of his treatment at the chest clinics in practically all stages, and often does not require any hospitalization at all. Now-

adays, hospitalization is limited to relatively short periods and then only for the purpose of treatment which cannot be provided at the clinics: it may be a matter of operation, establishment of diagnosis, bronchoscopy, distance of residence from the clinic as liable to prevent regular attendance, or unsuitable home conditions. All this makes the hospital an instrument of selective treatment, giving service only to those in genuine need of admission. In cases of lack of financial means precluding home treatment, the patient and his family get financial assistance so as to avoid hospitalization which is not medically indicated.

Therefore, despite the fact that the absolute number of cases detected each year does not change appreciably, the number of beds is being gradually reduced (see Table 7).

TABLE 7

NUMBER OF BEDS FOR TUBERCULOUS PATIENTS IN THE YEARS 1948, 1952, 1957, 1965

Year	1948	1952	1957	1965
Number of beds	628	1,975	1,115	428*
Rate per 1,000 population	0.71	1.21	0.56	0.16

* 40 beds for mentally ill tuberculous patients at the Neve-On mental hospital are not included.

Notwithstanding the reduction in the total bedstrength, there is no waiting list and every patient requiring treatment in a hospital is admitted immediately. Children of three years and upwards are admitted to Be'er Yaacov hospital, which has a children's ward of 25 beds. Younger children are admitted to children's wards in general hospitals; their number is so small that it would be pointless to develop services for infants in special institutions.

The average stay in hospital of cases discharged in 1963 was 107 to 140 days; in 1957 it was 250 and in 1954 — 420 days. The sharp drop is due to:

1. development of regular ambulatory services;
2. progress in methods of treatment;
3. improved housing conditions; and
4. establishment of a fund for home treatment and rehabilitation, so as to adjust home conditions to the requirements of treatment.

TABLE 8
NUMBER OF BEDS FOR TUBERCULOUS PATIENTS,
BY OWNERSHIP OF HOSPITAL, IN 1965

Hospital	Number of beds
Government hospital 'Shmuel Harofe' at Be'er Yaacov	330
Government hospital at Zefat, special ward	50
Meir hospital of Kupat Holim, Kfar Saba, special ward	40
University hospital, Hadassah Medical Organization, special ward	8
Total	428

In addition, mental patients suffering from tuberculosis are hospitalized, when necessary, at the mental hospital in Neve-On. (About 40 beds for Tb patients.)

Rehabilitation

Rehabilitation of tuberculous patients was initially a most difficult problem. On arrival, most of the ailing lived in temporary lodgings and immigrant camps. They were uprooted socially, mostly unskilled and had no aptitude for employment in local conditions. Many were the survivors of Nazi concentration camps. The labour market was very restricted and could not absorb any large number of handicapped workers. Moreover, public opinion was against the employment of former tuberculosis patients together with other persons.

These circumstances compelled the development of special rehabilitation services. Malben-AJDC set up sheltered workshops and a rehabilitation centre at Neve Haim where trades were taught, under strict medical supervision, to persons recovering from tuberculosis. During the period of its activity, from 1951 to the end of 1959, over 500 such recuperants passed through the centre; 95% of them achieved complete rehabilitation and adjusted themselves to social and economic life.

Meanwhile, economic conditions were getting better, industry was developing, and the demand for manpower rose. As a result of a country-wide educational campaign conducted by chest clinics, reservations in regard to employment of former tuberculous patients were dispelled in part. Opportunities for vocational training multiplied, so that dependence on the centre for rehabilitation became less, and, in due course, it closed down.

Rehabilitation programmes, now centred in hospitals and chest clinics, are carried out in cooperation with the Ministry of Labour, with the Employment Service and with social welfare services of all kinds. The addition of social workers to the staff of the clinics advanced the programme decisively.

To shorten still more the stay in hospital and in order to promote the rehabilitative process, a fund for home treatment and rehabilitation of tuberculous patients was founded in 1958. Its activities have recently been expanded to include other chronic patients. The contributors to the fund are the Ministry of Health and Malben. It gives financial aid to indigent patients, as grants or loans for the following purposes: maintenance and/or home help during treatment; vocational training; improvement of home conditions; opening of workshops and small businesses; purchase of rehabilitation appliances.

In this way, guidance and encouragement are accorded in the process of rehabilitation.

THE CENTRE FOR THE PREVENTION OF LUNG DISEASES, YAFO

The main functions of the Centre are:

(a) dispensary activities in a defined area (the southern suburbs of Tel Aviv-Yafo and the adjoining towns Holon and Bat Yam, and neighbouring villages);

(b) coordination and supervision of BCG vaccination;

(c) mass radiography;

(d) training of medical workers for tuberculosis prevention, such as the organization of registration and reporting, performance of tuberculin tests, and BCG vaccinations.

During the ten year period 1955-1964, over 973,000 fluorographic examinations were carried out — some 306,000 in the operational area (Yafo, Holon, Bat Yam and region), the rest in other parts of the country by mobile teams. Of the 306,000 examinations, 112,000 were performed on special groups of the population (industrial workers, food handlers, pregnant women, and other special groups). 69,000 lung X-ray examinations were carried out, and over 6,000 tomographs, 175,000 culture tests for Koch bacilli, nearly 4,000 direct sputum examinations, 59,000 different laboratory tests, 190,000 tuberculin tests, and 31,600 BCG vaccinations. The figures do not include tuberculin tests and BCG vaccinations in schools in the region, or by mobile teams, throughout the country.

During the same period, 12,102 persons were admitted for supervision and treatment. The number includes cases of pulmonary and extra-pulmonary

tuberculosis, patients with chest tumors and other chronic lung diseases, and patients accepted for observation but not in need of extended supervision or treatment.

Altogether, 4,292 cases of pulmonary and extrapulmonary tuberculosis in various stages — 'active' 'quiescent' and 'arrested' — were registered at the Centre, and another 1,800 of them as 'recovered'. (In the 'active' stage are patients secreting Koch-bacilli or presenting other clinical or roentgenological signs of activity of the process. A case is considered 'quiescent' when no bacilli have been found on six consecutive monthly examinations, and which shows no roentgenological changes or signs of clinical activity during a period of six months. 'Arrested' are cases in which the disease has been 'quiescent' for a period of two years. 'Recovered' are cases which have been in the 'arrested' stage for a continuous period of three years, that is, that they have not shown signs of activity for five years.)

Of the 1,064 cases of active tuberculosis discovered during the period under discussion, 648 patients were found to have Koch-bacilli, and 416 were classified as 'active tuberculosis'-patients on the basis of clinical and X-ray indicators.

In the years 1955-1964, 1,064 bacteriological examinations among unstable Tb patients were performed. The percentage of positive findings of Koch-bacilli decreased from 89.1 in 1955 to 39.1 in the years 1960-1964, the complementary percentages of negative findings being 10.9 and 60.9 respectively (Table 1).

TABLE 1
BACTERIOLOGICAL SPUTUM EXAMINATIONS AMONG UNSTABLE TB PATIENTS,
NUMBERS AND PERCENTAGES; 1955-1964

Period	Total Examinations	Findings of Koch-bacilli			
		Positive		Negative	
		Number	Percentage	Number	Percentage
1955	201	179	89.1	22	10.9
1956-1959	446	306	68.6	140	31.4
1960-1964	417	163	39.1	254	60.9
Total					
1955-1964	1,064	648	60.9	416	39.1

BCG Vaccination

Considering the epidemiological situation in tuberculosis and the dangers of its spread, associated with the immigration of large numbers of tuberculous patients during the first years of statehood, the need had arisen to immunize

the younger population. In November 1949, mass BCG vaccination was started, planned and organized by the Ministry of Health, in cooperation with the International Tuberculosis Campaign founded by Scandinavian medical institutions in collaboration with UNICEF.

In the first year of the joint project, a medical delegation of the Campaign took part in the vaccinations until the end of November 1950, thereafter the Ministry's Department of Tuberculosis operated alone.

Organization, operation, training in and supervision of vaccination were transferred to the Centre in 1954; vaccination of primary Grade 7 pupils was subsequently transferred to the regional clinics.

In the first years of operation, BCG vaccine was administered to tuberculin-negative children and young adults, aged 1-30. In 1952, it was decided to do the tuberculin tests and the first and re-vaccinations in defined age groups: kindergarten children, Grade 3 and Grade 8 primary pupils, Army recruits. Thus a 4-5 year tuberculin check was made possible, and those who had been vaccinated previously and in whom the test was negative were re-vaccinated.

From December 1955, newborn infants were vaccinated on the third day after birth. In 1958, it was agreed to abolish kindergarten and primary Grade 3 vaccinations. Since 1959, vaccination is performed only on the newborn in maternity hospitals and primary Grade 7 pupils: it is carried out in all parts of the country, except Jerusalem, so as to compare the effect of BCG vaccination on infection, morbidity and mortality from tuberculosis in the areas where vaccination was done with areas where it was not.

Regional clinics also vaccinated specific groups such as tuberculin-negative children in families where tuberculosis had been detected, as well as Negev Bedouin.

No serious complications following vaccination have been recorded. In surveys, about three out of every thousand vaccinations showed slight complications (inflammation of the regional lymph glands), which generally healed within six months, and isolated cases of *lupus vulgaris* at the site of vaccination, or the formation of keloids.

The number of tuberculin tests and vaccinations carried out by the mobile teams, and the vaccinations in maternity homes, are presented in Tables 2, 3 and 4 as a summary up to the end of 1962 and 1963.

TABLE 2

EXTENT OF BCG VACCINATIONS IN MATERNITY HOMES, 1956-1962

Year	Total births in Israel	Births in maternity homes in which vaccination was performed	Number of vaccinations	Vaccinated newborn as a percentage of births in homes	Vaccinated as a percentage of all births during the year
1956	52,287	12,811	7,679	60	16.6
1957	53,940	35,222	25,706	73	47.6
1958	52,049	37,736	29,262	77.5	55.6
1959	54,604	40,582	42,179	80	59
1960	56,002	43,301	37,282	86.9	66.6
1961	55,243	41,859	37,315	89	67.5
1962	56,500	44,748	40,988	91.5	72.5
Total	381,225	256,269	210,411	83.1	55

TABLE 3

TUBERCULIN TESTS AND BCG VACCINATIONS BY MOBILE TEAMS, JEWS 1949-1963

Year	First tuberculin test	First BCG vaccination	Re-test of vaccinated	Second BCG vaccination
1949/50	330,909	202,397		1,075
1950/51	94,152	34,361	45,516	1,075
1951/52	83,708	42,382	74,051	4,062
1952/53	55,331	35,585	53,045	2,069
1954	78,499	37,973	38,308	1,683
1955	59,067	25,252	21,351	2,789
1956	50,980	21,279	14,440	2,040
1957	48,040	30,080	18,000	3,880
1958	25,570	15,152	14,915	2,425
1959	22,209	18,406	12,765	2,891
1960/61	3,259	89	5,183	205
1962	5,110	—	705	—
1963	9,222	755	5,628	643
1949-1963	866,336	463,711	302,907	23,762

TABLE 4

TUBERCULIN TESTS AND BCG VACCINATIONS BY MOBILE TEAMS, NON-JEWS
1950-1963

Year	First tuberculin test	First BCG vaccinations	Re-test of vaccinated	Second BCG vaccinations
1950	33,380	22,715		
1951	6,802	2,083	3,272	217
1952	5,603	2,800	2,223	170
1953	917	730	1,059	195
1954	4,309	1,610	1,990	127
1955	1,929	787	801	109
1956	13,138	5,295	2,386	110
1957	495	332	219	27
1958	8,045	5,935	2,415	1,965
1959	7,314	4,973	1,137	352
1960-1961	1,493	138	479	33
1962	3,008	2,434	1,365	395
1963	949	91	360	45
1950-1963	88,180	49,923	17,695	3,712

Since 1949, Israel has been one of the countries in which vaccination is carried out systematically. 55% of all children born in 1956-1962 were vaccinated with BCG. During the last few years, about 70% of all newborn infants have been vaccinated, apart from over 500,000 children vaccinated by the mobile teams. The percentage of children vaccinated in Israel is thus high. Surveys established that approximately 50% of children up to the age of 14 have been vaccinated with BCG. As to the extent of vaccination of the newborn, it has been suggested that, under the epidemiological conditions of Israel, the policy of BCG vaccination immediately after birth is the basis for excluding tuberculosis from the list of significant public health problems.

Mass Radiological Examinations

Up to the end of December 1962, 522,000 examinations were made by the mobile teams (Tables 5, 6).

The number of examinations performed by the mobile teams up to the end of December 1964 was 667,000.

Case-Finding among Jews

Of 291,000 males examined, 290 had active tuberculosis — an average rate of 0.99 per thousand examined; 449 had clinically significant tuberculosis — 1.54 per thousand; 2,650 had inactive tuberculosis — 9.1 per thousand. The rate of active tuberculosis rises with age: from 0.23 per thousand in the 10-19 age group to 4.7 per thousand in the group 65 and older. Cases of clinically significant tuberculosis also gradually multiply with age. Cases of inactive tuberculosis reach a rate of 31 in males 60 years old and above. The rate for the 10-19 group is 2.08.

Of 231,336 females, 141 had active tuberculosis — 0.6 per thousand; 303 had clinically significant tuberculosis — 1.3 per thousand; and 1,540 had inactive tuberculosis — 6.65 per thousand. The rates rise with age, as is the case with males.

Among both sexes, 432 had active tuberculosis—a rate of 0.82 per thousand examined; 752 had clinically significant tuberculosis — a rate of 1.44, and 4,190 had inactive tuberculosis — a rate of 8.02 (Tables 5, 6).

TABLE 5

MASS-RADIOGRAPHY OF THE JEWISH POPULATION, 1952-1962,
BY SEX AND AGE-GROUP

Age-group	Composition of Jewish population, both sexes by age, percentages	Number of examined persons, both sexes	Percentage of examined persons by age, both sexes	Male		Female	
				Number of examined persons	Percentage of examined persons	Number of examined persons	Percentage of examined persons
0-9	23.2	56,078	10.75	29,472	10.20	26,606	11.50
10-19	19.4	145,524	27.86	77,706	26.70	67,818	29.31
20-29	13.9	88,308	16.90	48,629	16.71	39,679	17.15
30-39	13.1	81,116	15.52	46,574	16.00	34,542	14.93
40-49	11.3	69,708	13.43	40,947	14.00	28,761	12.46
50-59	10.3	41,446	7.93	25,552	8.78	15,894	6.87
60-64	3.5	10,872	2.08	6,920	2.16	4,562	1.97
65 +	5.3	20,222	3.87	10,211	3.50	10,011	4.32
Unknown	—	9,064	1.73	5,601	1.92	3,463	1.49
	100	522,338	100	291,002	100	231,336	100

TABLE 6

MASS-RADIOGRAPHY OF THE JEWISH POPULATION BY AGE-GROUPS, BOTH SEXES, 1952-1962,
NUMBERS AND RATES PER 1,000

Age-group	Examined	Active tuberculosis		Tuberculosis of clinical significance		Inactive tuberculosis	
		Number	Rate	Number	Rate	Number	Rate
0-9	56,078	24	0.42	39	0.69	101	1.80
10-19	145,524	29	0.19	55	0.37	312	2.14
20-29	88,308	40	0.45	63	0.71	325	3.68
30-39	81,116	70	0.86	122	1.50	790	9.73
40-49	69,708	77	1.10	167	2.39	992	14.23
50-59	41,446	81	1.95	142	3.42	756	18.24
60-64	10,872	30	2.75	47	4.32	292	26.85
65+	20,222	70	3.46	92	4.54	545	26.95
Unknown	9,064	11	1.21	25	2.75	77	8.49
Total	522,338	432	0.82	752	1.44	4,190	8.02

Case-Finding among Non-Jews

An average of 2.06 cases of active tuberculosis per thousand examined was found; 1.25 cases of clinically significant, and 4.04 of inactive tuberculosis. The rate of morbidity of active and clinically significant tuberculosis rises to approximately double that of the Jewish population. The inactive tuberculosis rates, on the other hand, are approximately 50% lower than among Jews (Table 7).

TABLE 7

MASS-RADIOGRAPHY OF THE NON-JEWISH POPULATION
(EXCLUDING BEDOUIN), BOTH SEXES, BY AGE GROUPS, 1952-1962,
ABSOLUTE NUMBERS AND RATES PER 1,000

Age-group	Examined	Active tuberculosis		Tuberculosis of clinical significance		Inactive tuberculosis	
		Number	Rate	Number	Rate	Number	Rate
0-9	5,373	10	1.86	2	0.37	11	2.04
10-19	12,370	10	0.80	8	0.64	16	1.29
20-29	6,422	9	1.40	8	1.24	17	2.64
30-39	4,140	10	2.41	4	0.96	19	4.58
40-49	2,784	9	3.23	7	2.51	17	6.10
50-59	2,119	9	4.24	5	2.35	22	10.38
60-64	710	1	1.40	5	7.04	12	16.90
65+	1,537	12	7.80	4	2.60	28	18.21
Unknown	338	4	10.30	2	5.15	3	7.73
Total	35,793	74	2.06	45	1.25	145	4.04

Among the Bedouin, 6,446 persons were examined in 1962, and 61 cases of active tuberculosis were found — a rate of 9.46 per thousand examined — and 16 of clinically significant tuberculosis — 12.72 per thousand.

The morbidity rate of women was found to be higher than that of men. The rate rises with age, as in the Jewish and non-Jewish populations. At 65 and above, the rate of active tuberculosis is 45.4 cases per thousand examined and about 80 cases of non-active. This means a high prevalence of tuberculosis. The active tuberculosis rates rise tenfold in comparison with the average active tuberculosis rates in the Jewish, and fivefold in comparison with those of the non-Jewish population (Table 8).

TABLE 8
MASS-RADIOGRAPHY OF BEDOUIN TRIBES IN THE NEGEV
BOTH SEXES, BY AGE GROUPS, 1962, ABSOLUTE NUMBERS AND RATES PER 1,000

Age-group	Numbers Examined	Active tuberculosis		Tuberculosis of clinical significance		Inactive tuberculosis	
		Number	Rate	Number	Rate	Number	Rate
0-9	1,825	7	3.83	—		2	1.09
10-19	1,615	4	2.47	1	0.61	3	1.85
20-29	996	6	6.02	1	1.00	12	12.04
30-39	843	6	7.11	4	4.74	16	18.97
40-49	480	11	22.91	4	8.33	11	22.91
50-59	351	11	31.33	—		16	45.58
60-64	145	8	55.17	4	27.58	7	48.27
65+	176	8	45.45	2	11.36	14	19.54
Unknown	15	—		—		1	66.66
Total	6,446	61	9.46	16	2.48	82	12.72

MALARIA

During 1918-1922, the British Army and later the Health Department of the Mandatory Administration carried out widespread surveys to determine the spleen rate as an indicator of the prevalence of malaria in the population of Palestine. The results showed that in most areas the rate was 50-100%, and in the others not less than 10 per cent (1).

Due to systematic measures adopted after 1922 by the Health Department, by Jewish organizations and the British Army, there was a marked decline in incidence from year to year. The disease remained endemic, however, in all

districts and hyperendemic in the north — the Hula, Jordan and Beth She'an Valleys — even after 1945, when DDT was brought into use.

No exact data are available on the situation at the end of the Mandatory period, but some illustrative figures from the report of the Health Department for 1946, and from the report of Kupat Holim for the same year, are given in the table below.

TABLE 1
STATISTICS ON MALARIA IN PALESTINE

1) Data of the Health Department, 1946	
Number of new malaria cases reported	861
Total number of visits of malaria patients to Government dispensaries	9,968
Percentage of malaria cases among dispensary attendances	0.5
Number of new malaria cases in non-Government dispensaries	2,425
Number of deaths from malaria	13
Spleen rate in 22 towns	0.4
Spleen rate in 382 villages	2.8
Spleen rates among the population in various districts:	
Jerusalem	1.3
Haifa town	0.7
Haifa and Galilee districts	4.7
Samaria	1.1
Gaza	1.0
2) Data of Kupat Holim, 1946	
Total number of members	25,012
Number of new malaria cases	518
Number of relapsed malaria cases	1,372
Total number of malaria cases	1,890
Rate of new malaria cases per 1,000 members	2.1

The first systematic malaria control demonstrations were carried out in 1921 by the Hadassah Medical Organization under the direction of Dr. I.J. Kligler and Dr. I. Weitzman with three anti-malarial inspectors. Good results were achieved and this led in 1922 to the establishment of a Malaria Research Unit by the Jewish Joint Distribution Committee of America under the direction of Dr. Kligler and, later on, of Dr. I. Shapiro. This institution initiated research, control and supervision of anti-malaria projects in all areas of Jewish settlement and in the adjacent Arab villages. It was attached to the Department of Health of the Mandatory Administration in 1922 and disbanded in 1931.

In 1927, Professor Kligler, then in charge of the Department of Microbiology of the Hebrew University of Jerusalem, founded a Malaria Research Station in Rosh Pina. Its first head was the late Dr. Rudolf Reitler, the second the late Professor Gideon Mer. Under Professor Mer's direction, which lasted until his death in 1961, the station won international esteem for its many studies on malaria and its vectors and afterwards for experimental studies of insecticides.

Things were chaotic when the State was established in 1948. The Mandatory Administration and the British Army had given up anti-malarial work in the Arab areas and their anti-malarial staff had disappeared. In most Jewish areas, too, the disturbances paralysed control. To put matters right, all anti-malaria inspectors were recruited into Army Service; now, all anti-malarial activities in the country were carried out by the Army's Anti-malaria Service. DDT spraying of houses was widely done. Dimethylphthalate as repellent and Proguanil as chemoprophylactic were used in many parts of the country.

At the beginning of 1948, the field staff consisted of twenty workers without transport; by the end of the year, it numbered eighty in six units, with all the necessary transport and equipment.

In that year, immigration and land settlement rose sharply. About 100,000 immigrants were housed in abandoned places not yet under malaria control, and most of the malaria cases occurred in Upper and Western Galilee, in the Jordan and Beth She'an Valleys, in Judaea and the Sdom region on the Dead Sea.

In 1949, the Ministry of Health set up an Anti-malaria Division which, till 1962, planned and carried out all the work under the direction of Dr. Saliternik, Professor Mer serving as consultant during his lifetime.

The work of the Division was complicated by the fact that Israel has 950 kilometres of frontier with neighbouring States in which malaria has not yet been wiped out. In Israel itself, medically unselective immigration introduced many malaria plasmodium carriers, who were scattered throughout the country without protective or immediate prophylactic or curative care, and so created new foci of infection.

Fourteen species of anopheline mosquitoes were found in Israel, but only four species were considered important: *A. sacharovi*, *A. sergenti*, *A. superpictus*, and *A. claviger*, which were vectors at different seasons. The period of transmission lasted at least nine months, and new cases could occur even in the remaining three months, if the weather was warm and dry.

The continuous growth of the number of dwellings and of new villages rendered the problem of control more intractable. At the same time, there were constant changes in the exploitation and development of water resources. For

instance, more and more water was impounded for irrigation and fish-ponds; it was piped from areas of plentiful supply to drier areas, irrigated agriculture being extended all the time. New artificial breeding-places of anopheles, especially *A. sergenti*, were thus formed. There was continuous movement up and down the country, especially by youth groups, which constituted hazards of infection far away from places of permanent habitation, particularly because of the custom of sleeping out of doors. (See Table 2.)

TABLE 2
PERCENTAGE OF MALARIA-PATIENTS INFECTED
OUTSIDE PERMANENT PLACES OF RESIDENCE, 1949-1957

Year	Percentage
1949	20.0
1950	28.6
1951	22.7
1952	58.6
1953	40.0
1954	31.0
1955	38.4
1956	20.0
1957	32.0

The situation presented in Table 2 indicated the importance of controlling population movement and of applying preventive measures in potentially malarious areas, such as repellents or chemoprophylactics.

The operations of the Division covered the whole country and the entire population. The field-work covered 962 springs and streams, with a total length of 1,500 kilometres, over 2,000 acres of swamps, 10,000 acres of fish-ponds, 20,000 wells and cisterns, and innumerable drainage and irrigation channels.

The Division concerned itself with the training of staff, the supply of materials and equipment and the planning and supervision of the work of the sub-district Health Offices. The Health Offices employed 25 permanent anti-malarial inspectors, 12 drivers (for 14 trucks), and 200 temporary workers for an average annual period of 200 days. About 550 tons of Malariol and 10 to 15 tons of DDT (technical grade) were used every year. The annual budget was about IL.400,000. In each sub-district Health Office there were one or more professionally trained anti-malarial inspectors, familiar with the population and water sources in their areas. The Chief Inspector furnished the Division with information on changes in water utilization and on mosquito findings: at

least once a fortnight, he sent to Jerusalem the specimens of larvae and adults of anophelines for confirmation or identification.

The notification of malaria cases was obligatory from the beginning, each notification leading to epidemiological investigations, including blood examinations of the neighbours of the patient, or of the whole population of the focus, and a three-year follow-up of malaria patients.

In 1952, a survey was made of all natural water sources requiring anti-malarial treatment; the results were published in Hebrew and English (4).

Research carried out concerned the epidemiology of malaria, and the influence of chemical materials on larvae, on adults of mosquitoes, and on the biology of the vectors (5, 6, 7, 8). Instructions on treating malaria and on prophylaxis were circulated (9).

The Division held courses of from three to six days for medical officers of the Health Offices, and of three weeks for new anti-malarial inspectors of the Ministry and of local authorities. From time to time, seminars and field trips were arranged for anti-malarial inspectors.

At the end of each year, the Division holds a three-day convention of medical officers of the Health Offices, anti-malarial inspectors, sanitary engineers, sanitarians and directors of sanitary sections of district and local authorities.

The Division was also concerned with the control of schistosomiasis, filariasis and West Nile fever. In 1962, it was merged with the Regional Health Services Administration and the Division of Environmental Sanitation.

Malaria Control Measures

The first experiments in the use of DDT were made in 1945 by the British Army, the Mandatory Administration, the Malaria Research Station in Rosh Pina, and on a wider scale by the Health Department of the Va'ad Le'umi (National Council of the Jewish Community of Palestine) (2, 3). This led to country-wide use of DDT by the Division after its formation in 1949.

The Division provided the equipment, transportation, instructors and inspectors, who supervised the preparation of the solutions and the actual spraying. The cost of labour and of the kerosene for the solution was partially defrayed by the population protected.

In each district in need of spraying, a trained team was set up under the supervision of the anti-malarial inspector: it consisted of a driver, a worker who prepared the solutions, and five spray-men. An experienced spray-man could manage daily 40-50 rooms with a surface of 2,000 square metres, using 100

litres of solution. Between sprayings, the team dealt with the clearing of vegetation, small drainage work and larviciding.

The timing of sprayings had been fixed according to the malaria transmission period and the seasonal prevalence of vectors in each area, as follows:

<i>Vector</i>	<i>Timing</i>
<i>A. sacharovi</i>	April-May and October
<i>A. sergenti</i>	April and September
<i>A. superpictus</i>	June and September

Where all species were prevalent, sprayings were done in April, June and September. Today, *A. sacharovi* is completely eradicated. Sprayings are restricted to April and, especially, September, the principal season of *A. sergenti*, mainly on the Syrian and Jordanian borders.

In 1949, the number of persons protected by these sprayings was about 138,000; in 1965 only 21,876 needed protection. Table 3 shows the gradual decrease in sprayings between 1949-1965.

TABLE 3
DDT SPRAYING, 1949 - 1965

Year	Number of villages sprayed with DDT	Number of rooms sprayed with DDT	Population protected by DDT spraying	Litres of DDT solution used
1949	302	60,915	138,282	279,530
1950	325	95,714	152,690	411,380
1951	153	62,113	79,110	289,600
1952	149	38,289	71,306	277,750
1953	145	39,161	67,522	294,140
1954	137	37,009	53,541	235,360
1955	130	36,750	59,806	240,540
1956	109	36,308	62,707	200,000
1957	98	56,991	69,279	147,440
1958	102	39,790	66,223	138,000
1959	98	26,799	60,259	100,720
1960	66	36,633	53,072	59,300
1961	57	22,829	43,346	45,658
1962	48	22,149	36,238	44,820
1963	47	23,180	42,400	49,680
1964	54	22,040	39,089	43,940
1965	48	23,089	21,876	48,480

Malaria Eradication Campaign

Immigration brought malaria-parasite carriers with it in unbroken flow; as mentioned, they were scattered without any protective measures, creating new sources of infection. Visitors and travellers returning from African and Asian countries, many of them parasite carriers, dispersed all over the country, also constituted potential sources of infection. All this, together with the entomological situation, called for intensive work.

Notification to the Ministry and the District Health Offices was compulsory on a detailed form; on receipt of a notification, a careful epidemiological investigation was carried out.

In 1960, the Government signed an agreement with the World Health Organization for a malaria eradication campaign, and activities began. Case detection and treatment of patients with laboratory-confirmed diagnosis was carried out by hospitals, clinics and private physicians. It was believed that in view of the high number of physicians, the high proportion of medically insured persons and the small number of remaining cases of malaria, there was no necessity for house-to-house visits, special malaria detection posts or slide-taking in every case of fever. Only in hospitals was slide-taking in every case of fever recommended. In clinics and other units for out-patients, malaria blood tests were taken only from suspected or unidentified fever cases, with some exceptions.

In areas constituting active malarial foci, as well as in certain groups of the population (Bedouin, new immigrants, students from Africa and Asia), mass blood tests were performed. Wherever a new case was detected, blood tests of the whole surrounding population were made, and an exhaustive epidemiological investigation was undertaken.

All blood slides taken in hospitals and clinics were examined in the local laboratories or in the central laboratories of the Ministry of Health and Kupat Holim. Slides collected by active method were examined by the malaria eradication service, which also included special microscopists, among them some anti-malarial inspectors, who received special training for this purpose in 1961/62. Diagnosis of malaria was confirmed by laboratory examination of blood slides.

Since 1956, the classification of cases was based on the recommendation of WHO as follows:

Indigenous cases (relapses of a pre-existing infection); imported; induced (by transfusion or another form of parenteral inoculation to which infection could be properly attributed); or introduced (directly or secondary to a known imported case).

All cases were treated radically as prescribed by WHO. Anti-malarial drugs for prophylactic purposes were distributed to the residents of and visitors to the Dead Sea area and to newcomers from malaria-endemic countries. Due to the anti-malaria campaign and the surveillance activities, the number of new cases dropped from 1,172 (1.6 per 1,000 population) in 1948 to one indigenous case (0.04 per 100,000 population) in 1965. (See Table 4, Figure 1.)

TABLE 4

MALARIA CASES — NUMBER OF ALL CASES, OF NEW CASES (INDIGENOUS CASES FROM 1956);
INCIDENCE RATE OF NEW CASES PER 1,000 POPULATION; NUMBER OF DEATHS; 1948-1965

Year	Number of		Rate of new cases per 1,000 population	Number of deaths
	all cases	new cases (indigenous from 1956)		
1948	1,329*	1,172*	1.60	
1949	1,686*	1,091*	1.04	79
1950	3,011	842	0.66	22
1951	690	247	0.16	5
1952	594	403	0.25	6
1953	390	275	0.17	3
1954	395	302	0.17	3
1955	149	91	0.05	1
1956	71	45	0.02	1
1957	69	44	0.02	1
1958	35	30	0.01	1
1959	52	36	0.01	—
1960	74**	23	0.01	—
1961	43	5	0.002	—
1962	40	5	0.002	—
1963	28	12	0.005	—
1964	20	1	0.0004	—
1965	31	1	0.0004	—

* Incomplete data.

** Including 23 asymptomatic cases.

In 1950, the number of relapses was 2,169; in 1965, there were no relapses of indigenous cases. In 1949, 1,091 new cases were reported in 191 villages; a great part of these cases was indigenous. In 1965, one indigenous case occurred in one village and 30 cases were imported.

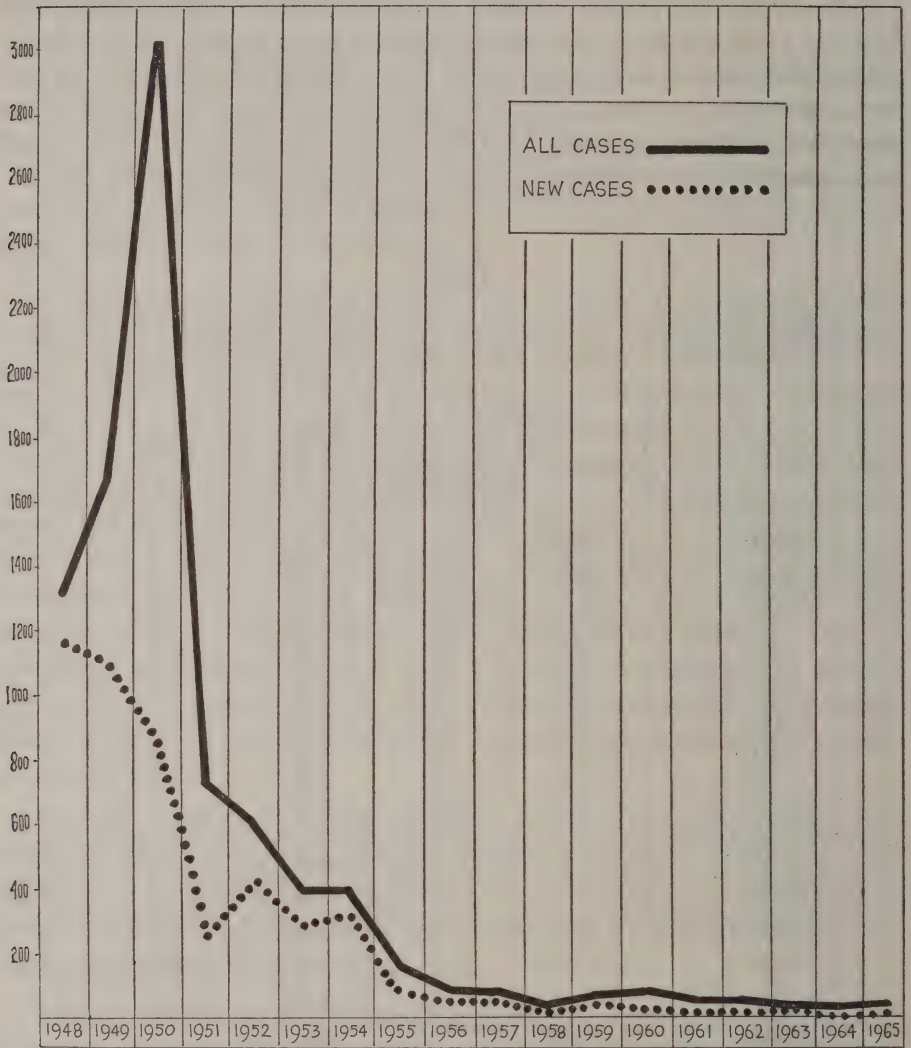


Figure 1. Malaria Cases—Number of All Cases and Number of New Cases, 1948-1965

Plasmodium vivax has constituted more than sixty percent of all cases. There were not more than two percent of *Plasmodium malariae* and mixed cases. *Plasmodium falciparum* occurred mainly in the Jordan and Beth She'an Valleys and in the Negev, especially in October and November. (See Table 5.)

TABLE 5

MALARIA CASES BY SPECIES OF PARASITE AND BY ORIGIN OF INFECTION, 1948-1965

Year	Plasmodium vivax				Plasmodium falciparum				Mixed infection				Plasmodium malariae				
	New (or indi- genous) Cases	Relapses	Imported Cases	Total	New (or indi- genous) Cases	Relapses	Import- ed Cases	Total	New (or indi- genous) Cases	Relapses	Import- ed Cases	Total	New (or indi- genous) Cases	Relapses	Induced	Imported	Total
1948*	768	120	—	888	384	35	—	419	14	—	—	14	6	2	—	—	8
1949*	892	568	—	1,460	192	27	—	219	6	—	—	6	1	—	—	—	1
1950*	696	2,074	—	2,770	135	85	—	220	3	6	—	9	8	4	—	—	12
1951*	150	401	—	551	93	30	—	123	3	4	—	7	1	8	—	—	9
1952*	254	158	—	412	138	23	—	161	9	4	—	13	2	6	—	—	8
1953*	171	96	—	267	99	15	—	114	2	3	—	5	3	1	—	—	4
1954*	200	81	—	281	98	9	—	107	3	1	—	4	1	2	—	—	3
1955*	67	51	—	118	20	2	—	22	4	2	—	6	—	3	—	—	3
1956	38	16	10	64	7	1	8	16	—	—	—	—	—	—	1	—	1
1957	24	7	11	42	20	1	—	21	—	—	—	—	—	—	3	—	3
1958	20	2	—	22	11	1	—	12	—	—	—	—	—	—	1	—	1
1959	32	10	2	44	7	—	—	7	—	—	—	—	—	—	2	—	2
1960	20	28	9	57	3	3	3	9	—	1	1	2	—	2	2	2	6
1961	5	1	20	26	—	—	14	14	—	—	3	3	—	—	—	—	—
1962	5	3	14	22	—	—	15	15	—	—	—	—	—	—	1	2	3
1963	11	—	9	20	—	—	7	7	—	—	—	—	1	—	—	—	1
1964	1	—	16	17	—	—	3	3	—	—	—	—	—	—	—	—	—
1965	1	—	10	11	—	—	16	16	—	—	1	1	—	—	—	3	3

* Including imported cases

Since September 1953, no blood has been used for transfusion that has not been in a refrigerated blood-bank for at least seven days, except in emergency. The following donors are considered to be potential malaria-parasite carriers: persons who immigrated from Africa or Asia; persons who have had malaria at any time in the previous five years.

Spectacular changes have taken place during the years in the monthly incidence of new cases. Before 1948, new cases showed two characteristic peaks: the first in May, June and July, caused in particular by *A. sacharovi*, prevalent in the Hula district and in valleys along the sea-shore; the second in September, October and November, mostly in inland areas, where *A. superpictus* and *A. sergenti* were prevalent. In districts where *A. sacharovi* was active in late autumn, the second transmission continues into December. Finally, the summer peak has almost disappeared and the autumn peak only occurred in October and November. The explanation is the almost complete disappearance of *A. sacharovi*, the considerable decline in the *A. superpictus* population, and the continuing activities of *A. sergenti* (5).

Since the inception of surveillance activities in 1960, efforts have been made to step up the number of blood examinations, by active as well as by passive surveillance methods, all over the country. The results of the blood examinations during 1960-1965 are given in Table 6.

TABLE 6
POSITIVE BLOOD-SLIDE FINDINGS DURING 1960 - 1965
BY ACTIVE AND PASSIVE SURVEILLANCE

Year	Active surveillance			Passive surveillance			Total		
	Slides examined	Positive		Slides examined	Positive		Slides examined	Positive	
		Number	%		Number	%		Number	%
1960	18,157	52	0.28	15,188	22	0.14	33,345	74	0.22
1961	11,968	14	0.12	11,058	28	0.25	23,026	42	0.18
1962	12,579	21	0.17	26,621	19	0.07	39,200	40	0.10
1963	4,972	3	0.06	24,487	25	0.10	29,459	28	0.10
1964	3,927	1	0.03	20,797	19	0.09	24,724	20	0.08
1965	3,346	15	0.44	15,317	16	0.10	18,663	31	0.17

Active surveillance includes mass blood examinations, epidemiological investigations, examinations of immigrants, visitors and students coming from countries known or suspected as malarious.

Passive surveillance includes blood examinations in hospitals, clinics and health centres, of blood taken from patients with fever and symptoms indicating malaria.

The situation, as examined at the end of 1963 by the Ministry in cooperation with a WHO consultant, was as follows:

<i>Malaria Foci</i>	
New active	3
Residual active	4
Residual regressive	4
Potential	4
<i>Total</i>	<hr/> 15

The consolidation phase covered the following areas: (a) the Dead Sea strip; (b) areas of a width of up to 10 kilometres along the frontiers with Syria and Jordan, in Galilee and in the Jordan Valley; (c) areas within a radius of 5 kilometres of every remaining focus. On the basis of these findings it was concluded that, at the beginning of 1964, areas inhabited by about 100,000 persons were in the consolidation phase, while the remaining areas, inhabited by about 2,223,000 persons, were in the maintenance phase.

If the malaria situation does not change, it may be expected that the whole country will soon be included in the maintenance phase. However, in order to maintain the results obtained, it will be necessary to keep up measures of vigilance such as: passive case detection (in hospitals, clinics or other out-patient units); radical treatment; epidemiological and entomological investigations in cases discovered; careful classification of cases by origin, species of parasite and method of detection; and prevention of imported cases among immigrants, foreign students and Israeli citizens returning from malarious countries.

VENEREAL DISEASES

During the Mandatory period, venereal diseases were rare among the Jewish population of Palestine; among the non-Jewish population infections were common in towns, while in some Arab villages non-venereal (endemic) syphilis was described. During World War II and the immediate post-war years, an increase in the incidence of primary and secondary syphilis and gonorrhoea was observed, mainly among returning Palestinian soldiers and young Jewish immigrants from neighbouring countries (1,2). After the establishment of the State of Israel, when mass immigration started from countries in Africa, Asia and Europe, a consultative body was formed by the Ministry of Health to plan the control of venereal diseases. Data collected since those early days indicate that only venereal syphilis and gonorrhoea present public health problems in Israel; recorded cases of other venereal diseases are extremely rare.

Venereal diseases were included in the list of infectious diseases notifiable by law in 1950. Individual notifications are submitted to sub-district health offices of the Ministry. A copy of each notification is forwarded to the Division of Epidemiology (until the middle 1950's to the Section for Venereal Diseases, which has since been incorporated in the Division of Epidemiology), where the data concerning notified cases are processed and published annually. A central card index of notified cases of syphilis was established in 1950 for the purpose of identifying rediscovered cases and their exclusion from the statistical material for the current year. Statistical data regarding syphilis relate, therefore, to discovered cases, defined as cases of syphilis medically diagnosed for the first time.

Control includes the following activities:

1. Case-finding through: (a) mass examinations of new immigrants; (b) routine serological tests of accessible groups, such as hospital patients, expectant mothers, entrants to Kupat Holim, blood donors, Army recruits, prison inmates; (c) examination of sex contacts and family members of notified cases; (d) detection of sources of infection.
2. Treatment of patients through: (a) free provision of drugs to treating physicians; (b) follow-up of patients to ensure completion of treatment.
3. Securing notification and epidemiological data concerning discovered cases.

During the years of mass immigration and some years thereafter, a rigorous syphilis control programme was enforced and efforts were made to examine every accessible group of the population as well as contacts of reported cases of all forms of syphilis. Thus, during 1951 alone, nearly 200,000 serological tests for syphilis were performed in a population of 1,300,000. During the period 1950-1952, half a million of such tests were carried out (3).

In the course of the years, a steady decline in the number of discovered cases of early lesion syphilis (primary, secondary and congenital) resulted in a considerable relaxation of control efforts and thus in reduced case-finding and under-reporting. Mass serological tests for syphilis among new immigrants, for example, were reduced in scope in 1954 and discontinued in 1957.

TABLE 1

REPORTED CASES OF SYPHILIS AND GONORRHOEA BY YEAR OF NOTIFICATION AND SPECIFIC
DIAGNOSIS, JEWS AND NON-JEWS. 1950-1964

	Syphilis, all Cases	Primary and Secondary Syphilis (1)	Late Syphilis	Latent Syphilis	Congenital Syphilis (2)	Gonorrhoea
Total	8,949	450	894	7,204	402	3,582
1950	1,024	82	23	908	11	10
1951	1,238	40	96	1,062	40	35
1952	1,015	38	121	786	70	76
1953	939	28	132	703	76	138
1954	931	19	156	678	78	120
1955	837	7	125	672	33	159
1956	528	7	88	411	22	168
1957	401	9	50	316	26	204
1958	345	3	21	316	5	241
1959	364	6	21	327	11	330
1960	173	10	15	141	7	338
1961	132	9	11	103	9	520
1962	229	31	14	179	5	401
1963	412	70	6	330	6	417
1964	381	91	15	272	3	425

¹ Including a small proportion of cases of early latent syphilis since 1961.

² Including a small number of cases of early congenital syphilis.

TABLE 2

REPORTED CASES OF SYPHILIS AND GONORRHOEA BY YEAR OF NOTIFICATION AND SPECIFIC
DIAGNOSIS, JEWS AND NON-JEWS 1950-1964; RATES PER 100,000 POPULATION (¹)

Year	Syphilis, all Cases (2)	Primary and Secondary Syphilis (3)	Late Syphilis (3)	Latent Syphilis (2)	Congenital Syphilis (2)	Gonorrhoea (3) (4)
1950	92.7	10.5	2.9	82.2	1.0	1.3
1951	93.5	4.3	10.4	80.2	3.0	3.8
1952	71.0	3.8	12.3	55.0	4.9	7.7
1953	64.0	2.8	13.2	47.9	5.2	13.8
1954	62.0	1.9	15.3	45.2	5.2	11.8
1955	53.8	0.7	12.0	43.2	2.1	15.3
1956	32.5	0.6	8.2	25.3	1.3	15.6
1957	23.3	0.8	4.4	18.3	1.5	18.1
1958	19.3	0.2	1.8	17.7	0.3	20.7
1959	19.8	0.5	1.7	17.8	0.6	27.6
1960	8.2	0.7	1.1	6.7	0.3	24.9
1961	6.1	0.6	0.8	4.7	0.4	37.3
1962	10.0	2.1	0.9	7.8	0.2	27.3
1963	17.3	4.5	0.4	13.9	0.2	27.1
1964	15.4	5.6	0.9	11.0	0.1	26.3

¹ The rates for the years 1950-1959 refer to the Jewish population only. (Notifications of syphilis and gonorrhoea among non-Jews were few.) The rates for the years 1960-1964 refer to the Jewish and non-Jewish population.

² Rates per 100,000 population — all ages.

³ Rates per 100,000 population — age 15 and above.

⁴ Includes a small number of cases in the age-group 0-14.

TABLE 3

REPORTED CASES OF EARLY SYPHILIS (PRIMARY, SECONDARY AND EARLY LATENT) AND GONORRHOEA (AGE 15 AND ABOVE) BY YEAR OF NOTIFICATION AND SEX, JEWS AND NON-JEWS, 1960-1964; NUMBERS (No) AND RATES PER 100,000 POPULATION (R)

Early Syphilis (Primary, Secondary and Early Latent)							Gonorrhoea					
Year	Both Sexes		Males		Females		Both Sexes		Males		Females	
	No	R	No	R	No	R	No	R	No	R	No	R
1960	10	0.7	8		2		338	24.9	321	47.0	17	2.5
1961	9	0.6	8		1		520*	37.3	495	70.5	19	2.7
1962	31	2.1	24	3.2	7	1.0	401*	27.3	384*	51.9	17	2.3
1963	70	4.5	56	7.2	14	1.8	417*	27.1	403*	52.1	14	1.8
1964	91	5.6	75	9.3	16	2.0	425*	26.3	405*	50.2	20	2.5

* Including:

1961: 6 cases, sex not recorded

1962: 1 case

1963: 2 cases

1964: 1 case

} in the age-group 0-14

Syphilis

During the early 1950's, as a result of vigorous case-finding activities, a considerable number of cases of syphilis was discovered, predominantly among new immigrants. Most cases were in the latent stage of the disease. Among cases of clinically manifest syphilis, those of early syphilis were relatively few.

The incidence of primary and secondary syphilis decreased until 1955; after that, it remained stationary, at a yearly rate of 0.2 to 0.8 per 100,000, up to 1962, when a sudden rise was observed (from 0.6 in 1961 to 2.1 in 1962), which continued in subsequent years. But the number of cases reported each year is not large. In recent years, a small proportion of cases has been reported as early latent syphilis (defined as latent syphilis of less than 4 years duration). Since 1962, rates are computed on a sex-specific basis. Each year, the rates for males are higher than those for females. The male to female ratio of rates increased from 3.2 in 1962 to 4.6 in 1964. In 1963 and 1964, the rates for males were computed on an age-specific basis and were highest in the age-group 25-34. Until the end of 1961, most cases were infected abroad. Since 1962, the number of cases infected in the country exceeds that of cases infected abroad. In both 1963 and 1964, over 80% of reported cases were infected in Israel.

The rates for congenital syphilis increased until 1953 and then decreased from 5.2 in 1954 to 0.3 per 100,000 in 1958. Since 1958, the rate has remained stationary. The majority of cases were discovered among new immigrants in

various age-groups, part of them in the latent stage of the disease. As regards early congenital syphilis (affecting children under 2 years of age) among Israel-born children, up to 1958 from 2 to 4 cases were reported yearly; during the 4-year period 1952-1962, one case was reported, and during the 2-year period 1963-1964, three cases were reported.

Late syphilis was on the increase until 1954 and then decreased from 15.3 in 1954 to 0.8 per 100,000 in 1961. Since 1961, the rate has remained stationary. Most cases were those of neurosyphilis, cardiovascular syphilis being second in frequency.

It is difficult to determine the respective proportions of early and late syphilis among the total of reported cases of latent syphilis, since most notifications do not provide information concerning the date of onset of the disease. Latent syphilis constituted 75-90% of notified cases each year. It was on a continuous decline from 1950 up to 1962, when the incidence rate of reported cases suddenly rose. Regarding the age and sex pattern of the condition, there were marked differences between immigrants from different countries.

TABLE 4
DEATHS FROM SYPHILIS AND SEQUELAE
JEWS, 1950-1964, RATES PER 100,000 POPULATION

1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
1.2	1.0	1.3	0.8	1.2	0.6	0.8	0.6	0.8	1.0	0.6	0.5	0.4	0.4	0.5

Source:
Causes of Death, 1964, Central Bureau of Statistics, Jerusalem,
Special Publication Series No. 191.

Throughout the period 1950-1964, the number of deaths in which syphilis was stated as the underlying cause of death was small in the Jewish population. The rates per 100,000, though fluctuating slightly from year to year, decreased gradually from 1.0-1.3 in the early 1950's to 0.4-0.5 in the early 1960's.

Some Epidemiological Features of Syphilis in Israel

Interpretation of data based on notifications of syphilis without considering factors determining notification would be misleading. Notifications reflect the rate at which discovered cases are reported, rather than the incidence and prevalence rates of the disease. Doubtless, all forms of syphilis were under-reported. During the early 1950's, efforts were made to arrive at estimates of under-reporting. It was determined that 58% and 49% of reactors to the serologic tests for syphilis discovered in 1951 and 1952, respectively, were not reported. 75% of these were in treatment with private physicians (3). In the

years that followed, with the relaxation of control efforts, case-finding and reporting of discovered cases decreased, though their actual extent has not been determined. Mass serologic tests of new immigrants, as already mentioned, were reduced and subsequently discontinued; routine serologic tests of in-patients were gradually discontinued in some hospitals (4). Comparisons of notifications of syphilis and laboratory reports of reactors to the serologic tests for syphilis indicate that reporting decreased in the course of the years. It is also difficult to assess the ratio of early to late cases throughout the period under review, since only a small proportion of notifications of latent syphilis provides the date of onset of the disease and, until the early 1960's, no distinction between early and late latent syphilis was made by notifying physicians. In recent years, a few additional problems have emerged. Owing to the relative rarity of early lesion syphilis during the last decade, many general practitioners, particularly among the younger generation, lack experience in recognizing the manifestations of primary and secondary syphilis, and vigilance regarding syphilitic infection has become less among both medical practitioners and the general public. Therefore, infected persons may fail to seek medical care, and the examining physician may fail to suspect syphilis in patients with early syphilis. In recent years, it has been repeatedly emphasized by venereologists that early symptomatic syphilis is frequently not diagnosed in general practice. As a result, a number of patients infected latterly may have entered the early latent stage without having been previously diagnosed and treated.

It is, however, difficult to determine whether the sudden reversal of the downward trend of latent syphilis, coinciding with the rise of primary and secondary syphilis, is due to an increase in reported cases of early latent syphilis. No attempts to broaden the scope of case-finding and improve reporting were made of late. Nor has there been any increase in the ratio of rates of younger to older ages among the cases reported so far.

Despite the shortcomings of notified data, it appears that the long-term trend of early syphilis emerging from the data reflects the actual trend of the condition in the country during the period 1950-1964. From venereologists all over the country, and from the data which they published, it could be learned that the number of patients with early lesion syphilis seen in clinics, hospitals and private practice decreased rapidly during the 1950's and increased since 1962 (1, 4, 5, 6). A similar trend of early syphilis has been reported from a number of other countries; in most of them the rise had already started in the late 1950's. As regards the observed sex and age distribution of reported cases of early syphilis since 1962, it is still too early to attempt an interpretation of the findings.

With regard to the late forms of syphilis, the data are inconclusive. It has been suggested by some venereologists that the trend of discovered cases is

consistent with that of notified cases and that the pool of undiscovered cases of late and latent syphilis is diminishing in Israel (4). On the other hand, the available evidence indicates that the continuous decline in the rates of reported cases reflects reduced case-finding and reporting due to relaxation of control efforts, rather than an actual reduction of the existing reservoir of old infections. While, in a stable population, the reservoir of unrecognized late and latent cases may be depleted through vigorous case-finding programmes, in a country of uninterrupted immigration it is likely to be continuously replenished. During the period 1956-1961, a quarter of a million immigrants entered Israel. It is possible that the incidence of early syphilis among them had decreased prior to their immigration, owing to a world-wide decline in the incidence of early syphilis, though this change would have been reflected mainly among the younger age-groups. An appreciable decrease in the prevalence-rate of syphilis among older ages could hardly be expected on that account. The percentage of older persons is similar among more recent immigrants and those who came in during the years of mass immigration and shortly thereafter: 28% and 30% of immigrants who came during 1948-1952 and 1956-1961, respectively, were above the age of 40. In accordance with the above assumption, prevalence-rates of syphilis among older ages of both groups should not have differed to any appreciable extent. On the other hand, it is possible that immigrants who came at different periods differed with regard to their past history of syphilis. For the time being, because of lack of information, neither assumption can be proved or disproved. Syphilis patterns among different immigrant groups are not known. Mass serologic tests of new immigrants were discontinued in 1957. As regards late lesion syphilis, some pertinent questions cannot be answered with any certainty. Among other things, it is not known how frequently syphilis is suspected as cause of cardiovascular disease, and among signs and symptoms referable to the central nervous system. Post-mortem data give no true conception of the frequency of the condition, since in Israel autopsies are only performed to a limited extent. It is, thus, apparent that data concerning late and latent syphilis contain too many sources of error to permit final conclusions as to their respective trends in this country.

The foregoing discussion is based on the assumption that notified cases represent cases of venereal syphilis. According to published and unpublished material, opinions on this point are by no means unanimous. The controversy started soon after the establishment of the State, when a large number of persons with positive serologic tests for syphilis was discovered, and it has continued up to the present time. It was suggested by some workers that a considerable proportion of reactors to the serologic tests represent biologically false positive (BFP) reactors (6, 7). There are several apparent reasons for this suggestion. First, a part of the medical profession found it difficult to provide a plausible explanation for the high rates of positive serologic reactions, in the face of a

low rate of symptomatic syphilis. Second, high rates of other communicable diseases were found among immigrants from North African and Asian countries, while the tests for syphilis used were the standard, non-treponemal antigen tests, which are not specific for syphilis and may sometimes be reactive in the presence of other communicable diseases, for example, malaria, leishmaniasis, leprosy and glandular fever. It is also possible that the widespread belief in the frequency of BFP reactions was strengthened by the unexpected trends of primary and secondary syphilis in the country. Syphilis did not show a tendency to spread either during or after the years of mass immigration, despite conditions in Israel which are generally considered conducive to the spread of venereal diseases: uninterrupted influx of a predominantly young immigrant population; the concentration of immigrants for long periods in immigrant and transit camps; mobility of the population inside the country; Army recruitment of large numbers of young persons.

Opponents of the foregoing view pointed out that a low rate of symptomatic syphilis among reactors to the serologic tests for syphilis is consistent with the natural history of the disease, since it is commonly the rate of infection, rather than of clinically manifest disease, that is measured in syphilis; and that syphilis has, therefore, been likened to an iceberg which is nine-tenths submerged (8). With regard to non-treponemal antigen tests it has been emphasized that they are still valuable in the diagnosis of syphilis, especially as an epidemiological tool, as demonstrated elsewhere (8). As for the decrease in the incidence rate of primary and secondary syphilis in the course of the years, some attributed it to rigorous control measures, others believed that it formed part of the world-wide decline in the incidence of early syphilis (4).

Another point at issue concerns the occurrence of non-venereal syphilis (*endemic syphilis*, *bejel*) among immigrants from the Near and Middle East. It has been suggested by some authors that non-venereal syphilis is common among immigrants from these countries (7, 9, 10). This view was, however, disputed by some venereologists and epidemiologists. Evidence of venereally-acquired syphilis was found in communities in which syphilis was thought to be of non-venereal spread (1). It was also pointed out that *bejel* is limited to isolated rural communities of extremely low economic, hygienic and educational standards, while Jews in most Near and Middle Eastern countries, as elsewhere, were predominantly town-dwellers (8).

Attempts were made by several workers to determine the differing occurrence of venereal syphilis among immigrant groups, and it was suggested that immigrants from different countries did not differ with regard to the frequency of the disease (6, 7, 11). It is, however, unfortunate that neither incidence (nor prevalence) rates specific for country of origin were provided by the above authors, and objections were, therefore, raised to the methods on

which the assessments were based. It has also been stressed that immigrants to Israel from any specific country are marked by distinctive social and cultural characteristics, and differences in prevalence-rates for syphilis among them should accordingly be expected. In support of this proposition, findings of numerous studies were brought forward, indicating that the frequency of syphilis is determined by social and cultural factors and consequently varies between different social and cultural groups (8).

In recent years, an attempt has been made to clarify some of these issues. A comparative epidemiological study of syphilis has, therefore, been conducted among immigrants from different countries, who came to Israel during the period of mass immigration (8). The records of the central reception camp, Sha'ar Ha'alayah near Haifa, were used, where new immigrants were routinely tested upon their arrival by means of standard serologic tests for syphilis. The prevalence-rates based on these tests were computed by country of origin, age and sex. The findings are presented in Table 5 and Figure 1. Significant differences in overall and age- and sex-specific prevalence-rates were found between the different immigrant groups. It can also be seen that in each immigrant group and sex the rates are lowest in the youngest age group (15-24) and then increase rapidly, each group and sex having its distinct age-pattern. In each immigrant- and age-group, the rates are higher among males, the male to female ratio of rates being highest among immigrants from Iraq. It would be difficult to provide a plausible explanation for such findings among predominantly BFP reactors. As regards *bejel*, it is a childhood disease usually contracted between the ages of two and ten. The age- and sex-patterns of syphilis observed among immigrants from the two Asian countries and particularly among those from Iraq suggest that syphilis in these groups was of venereal, rather than non-venereal, spread.

The increase in the incidence of early syphilis came as a surprise to medical practitioners who believed that syphilis is vanishing in Israel. It is presently recognized by the medical profession that it would take more than a 'miracle drug' to eradicate it, and there seems now to be an increased readiness for co-operation among treating physicians to control the disease. In recent years, in a number of instances, infected sex-contacts of reported cases were traced and brought to examination and treatment through joint efforts of treating physicians and public health workers. Moreover, the Ministry of Health and a group of venereologists jointly studied the possibilities of developing a programme aimed at the identification of groups at risk, which would permit the planning of the control of syphilis on a rational basis. But additional epidemiological research is needed, along the lines suggested in a recent publication (12).

TABLE 5

RECORDED CASES OF SYPHILIS OF ALL FORMS BY SEX, AGE AND COUNTRY OF ORIGIN;
IMMIGRANTS EXAMINED AT THE RECEPTION CAMP SHA'AR HA'ALIYAH, 1950-1952;
RATES PER 1,000 IMMIGRANTS

Country of origin	Males					Females				
	All ages	15-24	25-34	35-44	45+	All ages	15-24	25-34	35-44	45+
All countries	12.3	9.9	18.9	14.5	10.3	3.8	3.4	4.6	4.5	3.1
Iraq	13.2	10.6	19.5	17.3	10.3	3.1	2.4	2.8	4.5	3.2
Iran	21.4	16.5	34.5	24.2	16.3	9.8	8.6	15.6	9.6	4.7
North Africa	17.6	10.5	25.5	26.7	20.8	7.4	5.6	9.8	8.5	6.8
Rumania	6.2	1.8	4.0	6.2	7.7	2.1	1.0	1.4	2.5	2.3

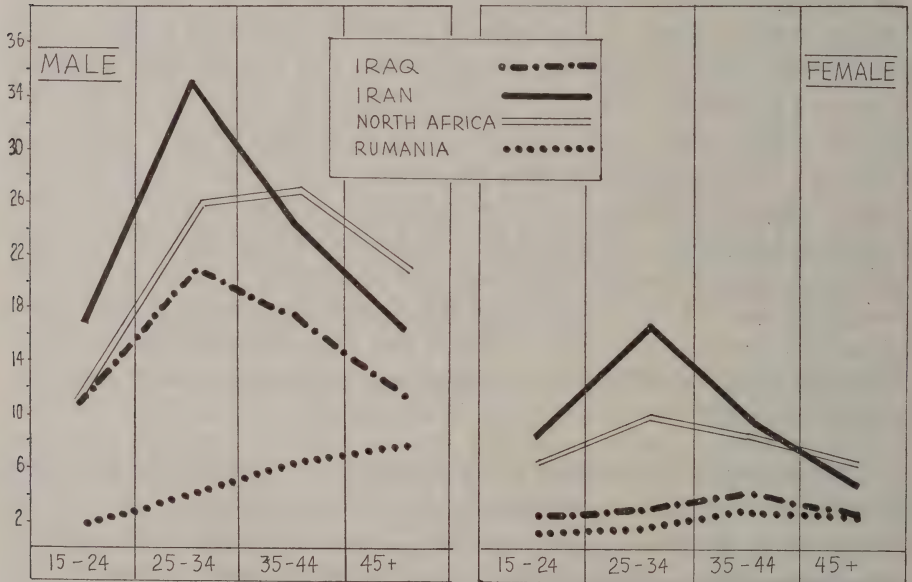


Figure 1. Syphilis of all Forms by Sex, Age and Country of Origin;
1950-1952, Rates per 1,000 Immigrants

Gonorrhoea

In Israel, only gonorrhoea among adults constitutes a public health problem. Most reported cases are discovered in the acute stage of the disease. Reported cases of vulvovaginitis among prepubescent females are very rare and of ophthalmia neonatorum exceptional.

The incidence-rate of reported cases of gonorrhoea increased steadily from 1950 through 1961, in which year the highest rate was recorded. Thereafter, a reversal of this upward trend was observed. The majority of notified cases were infected in Israel. Throughout the period under review, the rates for males greatly exceeded those for females. Among males, the rates increased up to 1961 and thereafter decreased. Among females the rate remained stationary with slight fluctuations from year to year. As a result, the male to female ratio of rates increased in the course of the years. The trend of the disease in the two sexes up to 1961 is presented in Table 6. Among males, the rates were highest in the age-group 20-29. In recent years, a change occurred in the age distribution of reported cases of males below the age of 30. When the patients aged 15-29 notified during the period 1960-1964 are studied by 5-year age-groups, the main findings are as follows: in 1960 and 1961, the rates were highest in the age-group 25-29, and, after 1961, in the age-group 20-24. In 1961, the rise in the rates was most rapid among persons aged 15-19 and least rapid among those aged 25-29. After 1961, in the group 25-29, the rates decreased rapidly from year to year, while in the group 15-19 they decreased in 1962 and increased rapidly in each subsequent year (see Table 7 and Figure 2).

TABLE 6

NOTIFIED CASES OF GONORRHOEA BY SEX, IN SELECTED YEARS 1954-1961, JEWS AND NON-JEWS;
RATES PER 100,000 POPULATION

Sex	Year					
	1954	1955	1957	1959	1960	1961
Both sexes	11.8	15.3	18.1	27.6	24.9	27.3
Males	18.7	28.2	33.2	47.1	47.0	70.5
Females	2.4	2.1	2.9	2.7	2.5	2.7
Male to female ratio of rates	7.8	13.4	11.4	17.4	18.8	26.1

TABLE 7

REPORTED CASES OF GONORRHOEA BY YEAR OF NOTIFICATION AND AGE;
MALES, JEWS AND NON-JEWS, 1960-1964
RATES PER 100,000 POPULATION

Age group	Year				
	1960	1961	1962	1963	1964
15-19	15.5	51.0	36.1	46.5	55.1
20-24	100.5	205.7	168.7	148.2	151.2
25-29	149.6	213.5	145.9	117.7	80.8

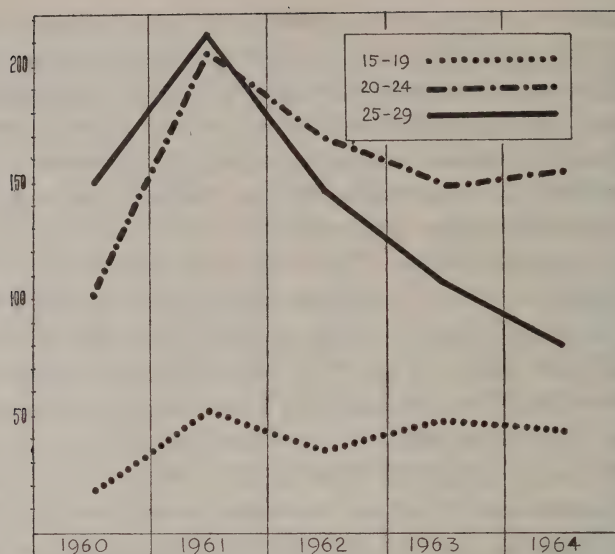


Figure 2. Gonorrhoea by Year of Notification and Age; Males, 1960-1964; Rates per 100,000 Population.

Some Epidemiological Features of Gonorrhoea in Israel

The interpretation of data based on notified cases of gonorrhoea involves all of the difficulties encountered in the interpretation of notified data of venereal diseases. Indeed, the measurement of the frequency of gonorrhoea is far more difficult than that of syphilis, and there are obvious reasons for this. To mention only a few, gonorrhoea has a shorter incubation period than syphilis. It can thus spread more rapidly, and fewer infected contacts are secured. It is considered the less serious disease. Since the introduction of antibiotics in its treatment, and the consequent low incidence of complications, the attitude toward the disease is one of amazing indifference. No tests comparable to the serologic tests for syphilis are as yet available for gonorrhoea. Case-finding surveys among different sub-groups of the population are, therefore, not feasible. In the female, gonorrhoea is often so mild as to escape notice and is difficult to confirm by available laboratory methods. A large reservoir of infection, therefore, remains undiscovered.

It is thus apparent that, frequently, even approximations of the actual incidence of gonorrhoea are not possible on the basis of notified cases. This was the situation in Israel in the early 1950's. Only 10 cases were notified in 1950 and, for the three-year period 1950-1952, only 121 were reported. The continuous rise in the incidence-rate of reported cases during the 1950's, in the face of decreasing control efforts, suggests that, in addition to improved reporting,

an actual rise in the incidence of the disease occurred. Some published data based on clinical material support this assumption (4, 5). The rise in the rates is accounted for entirely by the increase of reported cases in males. The increase in the male to female ratio of rates in the course of the years, despite the fact that the majority of patients were infected in Israel, suggests that the reservoir of infected females in the country is still undiscovered. A confidential enquiry made in recent years among venereologists in clinics and private practice revealed that the lack of information concerning infected females is due to the small number of females seeking medical care or brought to examination, rather than to selective reporting of males. Similar findings were reported from a large hospital (5). The observed trends of the disease in different age-groups among reported males suggest that gonorrhoea is increasing among young people. Similar observations were reported from some other countries.

The epidemiology of gonorrhea in Israel has earned limited attention. This is due partly to the attitude toward the disease and partly to difficulties involved in obtaining data for systematic epidemiological study. It is of interest to note the opposite trends of gonorrhoea and early syphilis during the period under review. It has been suggested by some authors (4, 5) that the reduced sensitivity to penicillin of increasing numbers of gonococcal strains might provide a partial explanation for the rise in the incidence rate of gonorrhoea. No other hypothesis has as yet been offered regarding this interesting finding.

The future prospects for the control of gonorrhoea are not promising. Serious attempts were made by some District Health Offices to detect infected contacts of reported cases, though the results were not in proportion to the efforts invested. Some success in the prevention of further spread of gonorrhoea may be expected, if efforts are directed toward the control of the disease among the groups at risk.

LEPROSY

During the Mandatory period, a few hundred patients from various countries of the Near and Middle East were hospitalized in the leprosarium in Jerusalem, run by the German Protestant "Moravian Sisterhood". In 1951, this was taken over by the Ministry of Health and given the name of "Hansen Hospital". Ever since, the medical care of in- and out-patients, their follow-up and the examination of contacts have been the joint responsibility of the Ministry and the Department of Dermatology of the Hebrew University-Hadassah Medical Centre in Jerusalem, the head of the Department being the Director of the Hansen hospital.

Leprosy is included in the list of communicable diseases notifiable by law. A copy of each individual notification received by the Ministry's sub-district

health offices is forwarded to the Ministry's Division of Epidemiology, where a central register of reported cases permits the identification of re-discovered ones. Data concerning notified cases are processed annually. Only discovered cases, which means cases medically diagnosed for the first time, are counted in the statistics for the current year. The Hansen hospital is the main source of information on discovered cases. A few cases are treated by dermatologists in other hospitals. Because of the difficulties involved in the diagnosis, treatment and rehabilitation of patients, there is a constant flow of information between workers in this field. In 1962, an attempt was made by the Division of Epidemiology to determine the extent of under-reporting and to complete the information on cases discovered since 1948. A confidential enquiry was, therefore, carried out among dermatologists, and their records were compared with the notifications filed in the Division. It turned out that very few of the discovered cases had not been reported.

Control of Leprosy includes:

- (1) case-finding through periodical examination of household and family contacts of discovered cases, especially children. Where indicated, other contacts, selected groups or foci of the disease are examined;
- (2) aiding treatment of patients through free supply of drugs to treating physicians;
- (3) follow-up of patients to ensure regular treatment and periodical check-up: patients are not released from control, since almost life-long supervision of known cases is considered necessary;
- (4) securing notification and provision of epidemiological data concerning discovered cases.

The control programme is not based upon compulsory segregation of patients.

During the early 1950's, a campaign of intensive case-finding was carried out, especially among new immigrants. Screening for leprosy by dermatologists was made part of mass medical examinations of immigrants. Case-finding efforts fell off gradually in the course of time, but they have been renewed in recent years.

Reported Cases

The statistical data presented in Tables 1-3 are based on confirmed cases reported during the period 1948-1964. The final diagnosis has generally been established by the staff of the Hansen hospital; thus a reasonable degree of uniformity is ensured regarding the criteria on which the diagnosis of leprosy

in its various types is based. As patients are not released from control, the prevalence rates for 1964 are based on all cases reported since 1948, alive and resident in Israel in 1964. In view of the small number of cases, the yearly discovery rates and the prevalence rates specific for area of birth and sex should be interpreted with caution.

During the period 1948-1964, 211 cases were reported of whom 12 died in the course of these years and 5 emigrated (Table 1). Two-thirds of the cases were new immigrants (persons who immigrated to Israel since 1948), coming from different geographical areas. The yearly discovery rates per 100,000 population varied from 0.9-1.4 during the years of mass-immigration to 0.2-0.4 during the mid- and late 1950's and 0.7-0.9 in recent years; in each period the rate was considerably higher among new immigrants than in the remaining three population groups. The cases among new immigrants came to medical attention at varying intervals after immigration: 57 per cent within a year or two, 18 per cent after 5-9 years and 14 per cent after ten or more years. Among persons born in Israel after the establishment of the State, no confirmed case of leprosy has been reported so far.

TABLE 1
REPORTED CASES OF LEPROSY BY POPULATION GROUP, 1948-1964

Total	211 (17)
Jews	198 (13)
Israel-born	33 (6)
Foreign-born	165 (7)
Immigrated up to 1947	22 (1)
Immigrated 1948-1964	143 (6)
Non-Jews	13 (4)

Figures in brackets are cases of death and emigration.

The prevalence rates for 1964, by area of birth and sex, are presented in Table 2. The rates were highest in immigrants born in Asia and lowest in immigrants born in Europe and America; they were generally higher among males. The patients born in Asia came from India, Turkey, Iran, Yemen and Iraq. 90 per cent of the patients born in Africa came from Morocco. Prevalence rates, specific for country of birth, were computed per 1,000 population. The rate was highest among immigrants born in India (1.5/1,000), second highest among those born in Turkey and Iran (0.5/1,000) and lowest in immigrants born in Iraq and Morocco (0.2/1,000).

Cases of lepromatous leprosy constitute 63 per cent of the reported cases, but the proportion varies according to country of birth from 40 per cent in immigrants born in India and Yemen to 70 per cent in those born in Turkey,

TABLE 2

REPORTED CASES OF LEPROSY BY AREA OF BIRTH AND SEX, 1964
NUMBERS AND PREVALENCE RATES PER 100,000 POPULATION*

Area of Birth	Both Sexes		Males		Females	
	Number	Rate	Number	Rate	Number	Rate
All Areas	194	7.8	115	9.2	79	6.5
Jews	185	8.4	110	9.9	75	6.9
Israel-born	27	3.1	19	4.3	8	1.9
Foreign-born	158	11.8	91	13.6	67	10.0
Born in Africa	35	10.7	24	14.5	11	6.8
Born in Asia	106	34.4	60	38.6	46	30.2
Born in Europe and America	17	2.4	7	2.0	10	2.8
Non-Jews	9	3.2	5	3.5	4	2.9

* Included: All cases reported during the period 1948-1964, alive and resident in Israel in 1964.

Iran and Morocco, and to 90 per cent in Jews born in Israel. Cases of tuberculoïd leprosy constitute only 13 per cent of the reported cases. In Table 3, the cases are presented by type of leprosy and age at the time of discovery, and by sex. In each age group above the age of 14 and in either sex lepromatous cases constitute more than half of the reported cases, the proportion being higher among males.

TABLE 3

REPORTED CASES OF LEPROSY BY TYPE OF LEPROSY, AGE AT THE TIME OF DISCOVERY, AND BY SEX; 1948-1964

Type of Leprosy	All Ages		0-14		15-29		30-44		45 and over		Age Not Stated	
	M	F	M	F	M	F	M	F	M	F	M	F
All Types	124(9)	87(8)	11	10	44(3)	25(1)	26(1)	22(2)	41(5)	30(5)	2	—
Lepromatous Leprosy	84(7)	50(5)	5	4	30(1)	15(1)	20(1)	15(1)	29(5)	16(3)	—	—
Tuberculoïd Leprosy	17(2)	11(2)	2	1	7(2)	1	2	2	4	7(2)	2	—
Indeterminate Leprosy	15	23(1)	4	5	3	9	2	5(1)	6	4	—	—
Dimorphous Leprosy	6	2	—	—	3	—	2	—	1	2	—	—
Type Not Stated	2	1	—	—	1	—	—	—	1	1	—	—

Figures in brackets are cases of death and emigration.

Some Epidemiological Features of Leprosy in Israel

The average size of the families with a leprosy index case varies from 4 in immigrants born in Europe and America to 7 in Jews born in Israel and 9 in non-Jews and immigrants born in Morocco and India. The average size of the families of lepromatous and non-lepromatous patients is similar.

The occurrence of leprosy differs conspicuously in various communities in Israel. In some, leprosy is apparently absent, in others only sporadic cases are encountered, while in others again the disease seems to be still endemic. However, accurate data on the frequency and distribution of the disease are not available. The main source of information for estimates of the incidence and prevalence rates of leprosy and its distribution are data collected routinely; these provide a measure of discovery rather than of occurrence. It is not easy to estimate the ratio of discovered to undiscovered cases. It probably varies from one community to another and from period to period, depending to a large extent on control practices. Case-finding was more intensive among new immigrants than in the already settled population, particularly during the period of mass immigration. Furthermore, in each population group, the majority of discovered cases were adults, who came to medical attention because of obvious clinical manifestations of leprosy. It is difficult to assess the number of infected persons without clinical signs of the disease or with minimal lesions, or the number of spontaneously cured cases. That a certain proportion of minimal and spontaneously cured childhood cases have escaped detection hitherto is suggested by the small percentage of children and adolescents among the discovered cases, although in communities in which the disease is common an appreciable proportion of the exposed children get minimal lesions before the fourteenth year of life (5 per cent to 35 per cent according to different studies*) part of which undergo spontaneous cure. Immigrant communities in which the disease was apparently common have a predominantly young population. It seems unlikely that a sudden and sharp decrease in the infection rate occurred in these communities from one generation to the next in their natural setting prior to immigration. In the light of the above finding it is obvious that accurate estimates of the secondary attack rate are also extremely difficult.

Another question that cannot be answered with any certainty is whether in this country leprosy shows a tendency to spread. Such assessments involve all the difficulties of measurement of incidence of leprosy on the basis of routine data, particularly in a country of continuous immigration. Undoubtedly, the reservoir of known cases has increased in the course of the years. Most of the increase is accounted for by cases discovered in new immigrants. It is,

* NEWELL, W. K. An epidemiologist's view of leprosy. *Bulletin of the World Health Organization*, 34:827-857, 1966.

however, by no means simple to determine the respective proportions of imported and indigenous cases discovered in immigrants. The patients came to medical attention at varying intervals after immigration. It is, therefore, difficult to ascertain how many of them were infected prior to immigration and how many after it; this is particularly true of child household contacts of leprosy persons. This difficulty is, to some degree, due to the natural history of the disease: the variations in the incubation period, which may extend over a period of years; the insidious onset and the minimal early manifestations evading detection for many years; and the remissions and exacerbations in the course of the disease.

Among persons born in Israel after the establishment of the State, only few suspected cases have been discovered as yet. This finding, however, should also be viewed in the light of the many factors complicating the measurement of incidence in leprosy. Long-term epidemiological studies are required for predicting the trend of the disease. The behaviour of leprosy at different times and in different places throughout its long annals is not clearly understood. Its natural history apparently shows a tendency to chronicity in the community as well as in the individual; its course in a population is believed to run for decades rather than for years.

SCHISTOSOMIASIS

During the pre-State period, a small number of fixed schistosomiasis foci were found along the southern coast. Parasite carriers were discovered among Egyptian labourers employed by the British Army, among orange-grove workers and in villages in the vicinity of the Yarkon, Lakhish and Soreq Rivers.

After 1948, most of these carriers left and it was hoped that schistosomiasis would disappear. But this did not happen. A greater potential source of infection was the arrival of many carriers among immigrants from Yemen, Iraq, Egypt and Morocco. In 1952, the number of carriers among them was estimated at 25,000 and of persons excreting parasite eggs at 12,000 (1).

In 1951, twenty schoolchildren were infected with *Schistosomiasis mansoni* by bathing in the Yarkon. An examination of the river showed extensive breeding of *Bulinus truncatus* and *Biomphalaria alexandrina*, which are snail vectors of the disease.

In 1955, an epidemic of *Schistosomiasis haematobium* broke out among about a hundred schoolchildren at Tirat Zvi, in the Beth She'an Valley, an area that had been completely free of the disease previously. A survey showed that all the children had bathed in an artificial irrigation pond, and investigations revealed extensive breeding of *B. truncatus* (1).

In 1952, a course in schistosomiasis control was given to anti-malarial inspectors, and frequent one-day courses and field surveys have since been arranged. At annual meetings of the inspectors, lectures were devoted to schistosomiasis, the bionomics of snail vectors and control methods.

An illustrated guide on schistosomiasis, together with snail specimens, was distributed to each District Health Office. Warnings against bathing were posted at all points where surveys have shown snail vectors to be present.

During 1954 and 1955, a country-wide survey of snail vectors, and of the bionomics of the two vectors, was carried out by the Anti-Malaria Division of the Ministry of Health, in cooperation with the Department of Parasitology of the Hebrew University-Hadassah Medical School. Over eighty breeding places of *Bulinus truncatus* were discovered.

The snail *Biomphalaria alexandrina*, vector of *Schistosomiasis mansoni*, was found in a single, strictly limited stretch of the Yarkon (1). Although the number of parasite carriers of *S. mansoni* is high, there was little danger of the disease spreading in Israel. In recent years, this vector has been completely eradicated and the possibilities of infection with *S. mansoni* are no longer existent.

On the other hand, there has been a risk of the spread of *S. haematobium*, because of the changes in water utilization which favour the multiplication of *Bulinus* snails, normally to be found among aquatic vegetation in stagnant or slowly running water. A salinity of 0.5% or more, or the presence of concentrated factory waste or sewage, limits or prevents the breeding of snail vectors. This explains why many water courses which were once suitable for the breeding of *B. truncatus* (for example, Wadi Eilon, Wadi Abulidgi, or Wadi Hadera) became unsuitable after they had been affected by concentrated sewage effluent. This is also the reason why even the Yarkon, formerly the major source of schistosomiasis, has recently ceased to be a focus of breeding of both snail vectors.

In 1956, the level of the Sea of Galilee was artificially raised and the water spread over the shore vegetation. This provided suitable conditions for the multiplication of *Bulinus* snails and their dispersal over more than five kilometres of the lake-shore. Lowering the level by a few centimetres and dusting the strip with copper sulphate, 10 p.p.m., solved the problem. In 1956-1957, water was pumped from the Jordan into artificial ponds for fish breeding or irrigation in the Beth She'an Valley; *Bulinus* snails found ideal conditions in them for multiplication (2).

In 1956-1957, all anti-malarial inspectors were provided with equipment for collecting and identifying snails, and with copper sulphate and sodium pentachlorophenate to destroy them. Destruction was carried out in 62 water-courses, requiring 578 work-days and seven tons of molluscicides. In most places, the density of the snail population was considerably reduced; however, in some of

them reinfestation occurred after a few months owing to snail invasion from untreated areas, or owing to solitary snails having escaped treatment.

The control measures of 1956 against *Bulinus* snails also resulted in the disappearance of outbreaks of *Paramphistoma* and *Schistosomiasis bovis* among cattle and sheep in the Shomron area.

As a consequence of the measures and observations described, it was decided to continue with mass snail destruction in bathing places only, and to hospitalize the parasite carriers of *S. haematobium*. No fresh cases of schistosomiasis have been reported since 1955.

CONTROL OF TRACHOMA

The struggle against trachoma in the Jewish population of Palestine was launched on the initiative of Miss Henrietta Szold in 1913. The percentage of findings of active trachoma among pupils of Jewish elementary schools in 1918 was 34%; thirty years later, the percentage among Jews from Iran, Kurdistan and Iraq was as low as 4%, among Jews of the Sephardic community 0.5% and among Ashkenazi Jews 0.06%.

The Health Department of the Mandatory Administration opened eye-clinics for the Arab population in several districts and put them under the supervision of the St. John's Hospital, which had been founded in Jerusalem in 1883. The percentage of cases of active trachoma among pupils of Arab elementary schools was 72% in 1922, and had fallen to 49% by 1939.

Since 1957, a systematic anti-trachoma programme has been maintained in a number of areas, seeking to establish the incidence of trachoma and its distribution according to sex, age and ethnic group. It includes training of kindergarten and primary school teachers and public health nurses in the superficial treatment of the disease. The effects of the programme are evaluated routinely. It is maintained jointly by the National Council for the Blind, the Hadassah Medical Organization and, since 1965, the Ministry of Health.

Thus, in 1957, 1958 and 1959, 28 villages in the Jerusalem district were investigated: over 90 per cent of the residents were reached; all children attending kindergarten or primary school, and their families, were covered. In the course of the three years, the percentage of active trachoma in the population was reduced from 9.9% to 2.7% and when, in 1966, a follow-up check was done, not a single such case was found.

The improvement can be attributed to:

- (a) better housing conditions, with barracks replaced by stone buildings, a reduction of overcrowding, and the installation of sanitary facilities, such as running water inside the homes;

- (b) a health education programme carried out by health educators and public health nurses of the Ministry of Health, the Hadassah Medical Organization and Kupat Holim;
- (c) a smaller incidence of seasonal eye inflammation; and
- (d) provision of active and superficial treatment by ophthalmologists and local surgical aides in all the villages.

Similar programmes were undertaken in other immigrant villages, and follow-up checks there discovered only a few cases.

During the same period, programmes of the same kind were carried out in Arab areas, namely, in the Triangle eastward of Netanya, in Nazareth and its surroundings, in the Afula zone, in Upper and Western Galilee, and among the Bedouin in the Negev. 15.2 per cent of the Bedouin examined were found to be suffering from active trachoma in 1963, 3 per cent in 1964, and 1.6 per cent in 1965.

In 1966, the programme everywhere included screening of pregnant women and of children of pre-school age. This was supported by the National Council for the Blind, with most effective help from a mobile unit.

QUARANTINE SERVICES

Quarantine stations perform their functions in accordance with stipulations laid down in international conventions.

The quarantine stations of the Ministry of Health render the necessary services and have been entrusted with the legal control of international passenger traffic, which includes:

1. free pratique to ships (port entry permits and performance of all activities therein, freely);
2. control of Immunization Certificates of all those entering the country;
3. isolation of patients with quarantinable diseases;
4. placement of suspected contacts of patients with quarantinable diseases, or those without Immunization Certificates, under the supervision of the Health Offices.

During the period under review no cases of quarantinable diseases were reported in the country nor were any registered in Israeli vessels.

Immunization

In 1959, the Director-General revised the regulations requiring travellers arriving in Israel to present certificates of smallpox vaccination and other im-

munizations. Travellers from European countries, the United States and Canada are exempt from the requirement under certain conditions. The amended regulations came into force in 1962.

In 1959, Israel ceased to be considered a Yellow Fever Receptive Area, since the *Aedes Aegypti* mosquito had not been found here for several years. Consequently, travellers from yellow fever areas are exempt from presentation of Immunization Certificates on arrival.

The following quarantine stations were in operation:

Lod Air Terminal

This station informs the Head Office and all other stations of WHO epidemiological radio bulletin transmissions received by the airport's communications service.

Haifa Port Quarantine Station

The station is authorized to issue Deratting Certificates and Deratting Exemption Certificates to ships. In 1963, 1,003 ships were given 'Free pratique' by wireless, and 116 vessels by the inspectors, following inspection.

Tel Aviv-Yafo Port Quarantine Station

This station was closed at the end of 1965.

Eilat Port Quarantine Station

The station is authorized to issue Deratting Certificates and Exemption Certificates. It does not give 'Free pratique' by wireless.

Ashdod Port Quarantine Station

This station was opened at the beginning of 1966.

Progress all over the world, during the past few years, in regard to quarantinable diseases has enabled Port Health Services to deviate from their traditional functions and to turn their attention to such additional areas as maritime hygiene, intensified sanitary control of imported foodstuffs, and safety measures in regard to transportation of radioactive materials. A survey of hygienic and sanitary conditions of storage, preparation and serving of food in Israeli ships has been carried out to instruct crews in methods of preventing food poisonings.

Increasing attention is given by the Ministry to the problems of the health of seafarers. According to the 1924 Brussels Convention, free medical treatment is guaranteed to seamen suffering from venereal diseases, in all vessels calling

at Israeli ports, regardless of nationality. As part of a health education campaign, leaflets have been issued on the prevention of venereal diseases and malaria.

The standard for medicine chests on cargo vessels, adapted according to the recommendations of the Joint Committee of the World Health Organization and the International Labour Office, undergoes constant revision.

At the instance of the Shipping and Ports Division of the Ministry of Transport and Communications, standards of eyesight in Israeli merchant seamen have been determined.

Health work for seamen includes the vitally important transmission of medical advice by wireless to ships at sea. This advisory service, rendered by Rambam Government Hospital in Haifa, is growingly in demand.

The service is rendered voluntarily by the doctors of the hospital. A central role in its successful operation is played by the Coast Station of the Ministry of Posts at Haifa, which ensures speedy communication. No payment on the part of sick seamen or shipping companies is entailed.

THE PUBLIC HEALTH LABORATORY SERVICES

Shortly after the conquest of Palestine by the British forces in 1918, the Mandatory Administration set up the Central Government Laboratories, first located at Haifa and transferred to Jerusalem in 1922. At that time, they served for routine sanitary tests, the diagnosis of contagious diseases and toxicological and food tests, as well as standard quality control and supervision of pharmaceutical supplies. An institute for the production of rabies, small-pox, typhoid, cholera and plague vaccines was attached to them. Routine sanitary tests were also performed in the laboratories of the Bnei Brak hospital (in the coastal plain) and in the Haifa Government hospital.

The complex problems created by mass immigration necessitated the adoption of stringent measures for the control of contagious diseases. Health Officers demanded that highly developed laboratory services be put at their disposal. In 1952, Prof. G.S. Wilson and the late Dr. A. Felix visited Israel on behalf of the World Health Organization, carried out a survey of public health laboratories and submitted proposals for their expansion and improvement.

The following laboratories, serving public health functions, are in operation today:

The Government Central Laboratories, Jerusalem

During the War of Independence, these laboratories expanded their services. In 1949, a national Salmonella Centre was set up in the Central Laborato-

ries, in close cooperation with the Salmonella Centre in Copenhagen; it has recently been enlarged into a diagnostic centre for entero-bacteriaceae. There are also incorporated in them: the district diagnostic laboratory, which serves Jerusalem, Be'er Sheva and the surrounding areas; the fairly new streptococcus reference centre, which is taking part in the international survey of the type distribution of haemolytic streptococci; the vaccine and serum institute, producing rabies, smallpox, TAB, cholera and plague vaccines, and preparing standardized biological agents (antigens and sera) for diagnostic purposes in respect of enteric fevers and salmonella infections and for distribution to all other local laboratories.

The District Public Health Laboratory, Haifa

In 1951, a district laboratory was set up serving the Haifa and the Northern District, with special emphasis on the control of foodstuffs entering the port of Haifa.

The Dr. Felix Public Health Laboratories, Tel Aviv

These were formed in 1960 by the merger of two separate laboratories:

- (1) The epidemiological laboratory, which was opened in 1959 at Abu Kebir, near Tel Aviv, with the aid of the World Health Organization, following the Wilson-Felix proposals. It includes the district laboratory serving the Tel Aviv-Yafo District, the Central District, and Ashqelon; the sewage laboratory for testing sewage and water for all District Health Offices; reference centres for phage-typing of typhoid and para-typhoid strains, for identification of bacillary dysentery strains and diseases caused by rickettsias; for performance of the Nelson test in the venereal disease laboratory; and for identification of Tb strains and toxoplasmosis.
- (2) The virus laboratory, Yafo; when, in April 1956, the findings were made public of the field trials of vaccination against infantile paralysis carried out in the United States, it became evident that inoculation with the Salk vaccine was both effective and desirable. The Ministry of Health investigated the measures to be taken to assure the vaccination of all children in the age groups most susceptible to polio infection. It proved, however, impossible to obtain the required quantities of vaccine from the United States and, after a mission of experts had visited the United States and Denmark to examine methods of production, a laboratory was set up within the Ministry to produce Salk vaccine and to undertake serological and epidemiological investigations after vaccination.

When it was decided to change over to the administration of oral, live vaccine of the Sabin type, instead of the inactivated Salk vaccine, the virus laboratory was made responsible for all work connected with the final preparation, distribution and supervision of the oral vaccine, for whose manufacture imported materials are used. It also performs all follow-up investigations of the vaccinated children. Besides, it does all diagnostic work in the field of enteric and respiratory viruses, and research investigations into all virological infections, which are becoming more and more important for the understanding of the epidemiological climate of Israel. One of the two influenza reference centres in this country is located in this laboratory.

The Vector Control Laboratory

The Laboratory deals with all insect-borne contagious diseases and related problems, especially diagnostic work on ectoparasites of rats in ports or port areas, investigates the resistance of insects against insecticides, and defines larvae of adult anopheles.

Under the International Sanitary Convention, the Ministry of Health is required to check the rat situation and ectoparasites in harbours and harbour areas. Checks are run on the ectoparasites sent to the laboratory for identification.

The laboratory constantly collects insects of public health importance. The collection is maintained for instruction and demonstration purposes and is used occasionally for research by local scientists. Several strains of insects maintained in the laboratory are used for testing new insecticides and as reference strains for insecticide resistance studies.

The Ministry of Health requires that every insecticide be tested before authorization is given to release such a product in the local market. The laboratory carries out the bio-assays and the tests on efficacy.

Some research projects have been carried out by the laboratory in the fields of vector bionomy and insecticide resistance.

Reference Laboratories in Hospital and Research Laboratories

Certain referential functions are carried out in hospital or research laboratories, the main reason for the arrangement being the availability of fully-trained experts.

In 1957, a staphylococcus phage-typing laboratory was opened in the Assaf Harofe hospital in Zerifin which also deals with the prevention of hospital cross-infections caused by staphylococcal organisms.

At the Institute for Biological Research in Nes Ziona there is a reference laboratory for leptospirosis, while at the Hebrew University Hadassah-Medical School in Jerusalem one of the two influenza reference centres is located.

Institute for the Standardization and Control of Pharmaceutical Products

The Institute is charged with the determination of quality, composition and properties of all pharmaceutical products, whether imported or locally manufactured. It also examines vaccines, antisera, insulin and antibiotics, and is responsible for the detection of residual insecticides and rodenticides in fruits, natural juices and wine.

It carries out routine examinations for the presence of food additives, especially artificial colouring and preservatives. It also supervises the quality control of cosmetics.

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MOTHER-AND-CHILD HEALTH

Mother-and-child health work in Israel developed from the centres established by the Hadassah Medical Organization, the first one as early as 1921 in the Old City of Jerusalem. Others were opened in the 'thirties by the municipality of Tel Aviv and Kupat Holim; by 1948 as many as 120 were in existence. Later on these agencies expanded their maternal and child health and school health services, as well as the care of handicapped children, with grants-in-aid and advice from the Ministry of Health, which, on its part, concentrated at first on providing hospital care for maternity cases and sick children.

The Ministry quickly took the lead in creating preventive and promotive health services for mothers and children, and it was responsible each year for the opening of an average of 38 new centres. It was an effort dictated by the necessity to meet the demands of a growing Jewish population, and it included the Arab sector as well, where the few centres set up by the Mandatory Administration had been abandoned by their staffs following the War of Independence.

Objectives of mother-and-child health services are to provide for pre-natal, natal and post-natal care for every mother and full preparation for the birth of every child; protection and promotion of health for every child from birth to adolescence, as well as early detection of every handicapped child and his rehabilitation.

The programme, over the years, has become more family-oriented. The family has been accepted as the unit of each centre's practice and the service rendered has, therefore, been directed towards the healthy growth and development of the family. A comprehensive approach to the needs of the family has been adopted, gradually replacing specialized public health nursing by a generalized nursing practice in town and country. More time is devoted to home visits, to gain a better understanding of the family and form a closer contact with it.

The family, however, is closely bound up with the neighbourhood in which it lives, and the centre has, accordingly, taken upon itself to serve the surrounding neighbourhood or community.

Guided by the principles of social anthropology, an endeavour is being made to understand the newcomer in relation to his social and cultural back-

ground. The service strives to be aware of his expectations and impart a comprehension of its work in line with his experiences.

The physician and the nurse are often called upon to depart from patterns of work formed in their training and to try out and employ new methods of handling the problems of different kinds of immigrants. The earlier authoritarian approach has changed and, as a result, there is less risk of missing educational opportunities or making families over-dependent on the staff.

With the more pressing problems of preventable illness and death now partly, if not entirely, solved, more emphasis can be laid on the understanding of the mental health needs of the child and the development of the psychological and social aspects of the services.

The overall rise in the number of handicapped children as a result of advances in medical practice which kept alive children with birth defects, has made imperative earlier diagnosis and assessment of obstructive conditions which might interfere with the normal course of child growth and development.

In order to improve the coordination of preventive and curative services, various schemes have been tested. In some places, cooperation with Government hospitals has been achieved by affiliating to the centre obstetrical and pediatric staff. This maintains the quality of the physician's clinical work and provides him with valuable experience; the arrangement brings hospitals and the communities served into near contact, and assures continuity of care.

Another device has been the establishment of family health centres, with full responsibility for promotive, preventive and curative services for all members of the family, adults as well as children.

In two Arab areas, these family health centres provide, in addition, lying-in facilities. The centre with the maternity beds is in the largest village of the region; sub-centres are located in the smaller villages.

Efforts continue to arouse community interest and participation in the provision of preventive and promotive services, but most services are still conducted as a central Government activity, and the planning and organizing of local mother-and-child health centres are not yet regarded as a communal responsibility.

The personnel of the services look upon the advancement of mothers' and children's health as an integral part of a wider sphere of community development, which is why cooperation is sought by the health team from the staffs of other services which are represented on local committees of professional workers, so that the maximum benefit of families and the communities concerned may be attained.

The Division of Mother-and-Child Health in the Ministry, charged with planning and development, setting standards of service and training, maintains

close liaison with the District and Sub-District Health Offices as well as with the municipalities of Tel Aviv-Yafo and Jerusalem, Hadassah Medical Organization and Kupat Holim.

The distribution of centres according to agency in 1948 and 1966 is listed in Table 1.

TABLE 1
NUMBER OF MOTHER-AND-CHILD HEALTH CENTRES BY OWNERSHIP; 1948, 1966

Operating Agency	1948	1966
Ministry of Health	—	450
Kupat Holim	50	175
Municipality of Tel Aviv-Yafo	10	18
Municipality of Jerusalem	—	10
Hadassah Medical Organization	60	3
Others	—	2
Total	120	658

The centres of the Ministry and of Kupat Holim are spread over the whole country; those in Jerusalem and Tel Aviv-Yafo serve the respective municipal areas only.

TABLE 2
BIRTHS, NUMBERS AND RATES PER 1,000 POPULATION,
JEWS AND NON-JEWS, 1948-1966

Year	Jews		Non-Jews		Total Population	
	Number of Live Births	Rate per 1,000	Number of Live Births	Rate per 1,000	Number of Live Births	Rate per 1,000
1948	17,678	26.3				
1949	26,985	30.0				
1950	36,359	33.0	7,072		43,431	
1951	43,249	32.7	7,293	46.5	50,542	33.8
1952	45,131	31.6	7,425	45.6	52,556	33.0
1953	44,364	30.2	8,188	48.4	52,552	32.1
1954	41,046	27.4	7,905	45.1	48,951	29.2
1955	42,339	27.2	8,347	46.0	50,686	29.2
1956	43,411	26.7	8,876	47.1	52,287	28.8
1957	44,817	26.0	9,123	46.7	53,940	28.1
1958	42,872	24.1	9,777	48.0	52,649	26.5
1959	44,599	24.3	10,005	47.4	54,609	26.7
1960	44,981	23.9	11,021	50.3	56,002	26.6
1961	43,719	22.5	11,150	49.3	54,869	25.2
1962	44,255	21.8	12,101	50.6	56,356	24.6
1963	46,384	22.0	13,107	48.9	59,491	25.0
1964	49,143	22.4	14,401	51.4	63,594	25.7
1965	51,311	22.6	14,835	50.7	66,146	25.8
1966	51,987	22.4	15,160	49.6	67,147	25.5

Maternity

The maternal mortality rate among Jewish women was 0.52 per 1,000 live births in 1966, compared with 0.96 in 1948. The low rate may be attributed in part to the high percentage of births that take place in hospitals. Jewish women in Israel have always preferred hospital to home confinements. The new immigrants were not accustomed to this and, to induce them, as well as Arab mothers, to avail themselves of the advantages of delivery in safe conditions, the National Insurance Law of 1953 stipulates that the maternity grant is payable only to mothers confined in hospital. At present almost 100 % of all Jewish births take place in hospital. In 1966, 84.1 % of all non-Jewish births took place there, as compared with 4 per cent when the State was established.

TABLE 3

BIRTHS IN HOSPITALS AS PERCENTAGES OF TOTAL LIVE-BIRTHS AND STILLBIRTHS,
JEWS AND NON-JEWS, 1949-1966

Year	Jews		Non-Jews	
	Live Births	Still-births	Live Births	Still-births
1949	93.1	—		
1950	94.8	92.1		
1955	95.9	94.1		
1960	99.4	97.3	54.5	94.7
1961	99.5	97.2	62.7	98.7
1962	99.9	99.7	71.3	100.0
1963	100.0	99.7	76.3	99.5
1964	99.9	99.9	78.9	99.5
1965	99.9	99.7	80.6	100.0
1966	99.9	99.7	84.1	99.7

The birth rate among the Jewish population reached its peak of 33.0 per 1,000 population in 1950 and declined by 1966 to 22.4. Among the non-Jewish population the birth rate showed an upward trend from 46.5 to 49.6 per 1,000 population during the same period.

TABLE 4

MATERNAL DEATHS (JEWS), 1948-1966

Year	Absolute Number of Deaths	Rates per 1,000 Live Births
1948	17	0.96
1949	31	1.15
1950	35	0.96
1951	33	0.76
1952	34	0.75
1953	34	0.77
1954	38	0.93
1955	31	0.73
1956	21	0.48
1957	21	0.47
1958	28	0.65
1959	41	0.92
1960	26	0.57
1961	29	0.68
1962	18	0.39
1963	23	0.50
1964	8	0.17
1965	21	0.41
1966	27	0.52

Infants

In 1948, the infant mortality rate of the Jewish population was 36.3 per 1,000 infants, 0-1 year old. (See note to Table 5.) Due to mass immigration in the first years of statehood, the rate rose to 51.7 and declined thereafter to reach 21.6 in 1966.

Reliable registration of non-Jewish infant deaths is available as from the year 1952 with 67.7 per 1,000 live births. The rate declined to reach 38.2 in 1966. The infant mortality rate of the total population was 43.1 in 1951, and fell to 25.3 in 1966.

In 1963, infant mortality rates were 15.0 per 1,000 live-births in kibbutzim, 20.2 in old-established towns, 23.2 in immigrant towns and 21.6 in new villages, where the rate had been 157.8 per 1,000 infants of the age 0-1 year in 1950. (See Table 6).

TABLE 5

INFANT MORTALITY RATES, 1948-1966 *

Year	Jews	Non-Jews	Total Population
1948	36.3		
1949	51.7		
1950	46.2		
1951	39.2		
1952	38.7	67.9	43.1
1953	35.7	60.1	39.6
1954	34.1	61.2	38.8
1955	32.4	62.5	37.3
1956	35.6	61.5	40.3
1957	33.4	66.8	39.0
1958	30.7	52.7	35.0
1959	27.7	43.8	30.6
1960	27.2	48.0	31.3
1961	24.2	48.0	29.0
1962	28.5	47.5	32.6
1963	22.7	44.6	27.5
1964	23.9	42.2	28.2
1965	22.7	43.4	27.4
1966	21.6	38.2	25.3

* The infant mortality rates for Jews were computed up to 1962 per 1,000 infants of the age group 0-1 (including immigrants not born in Israel). The rates for Jews from 1963 on, as well as the rates for non-Jews and for the total population for all years, are computed per 1,000 live-births.

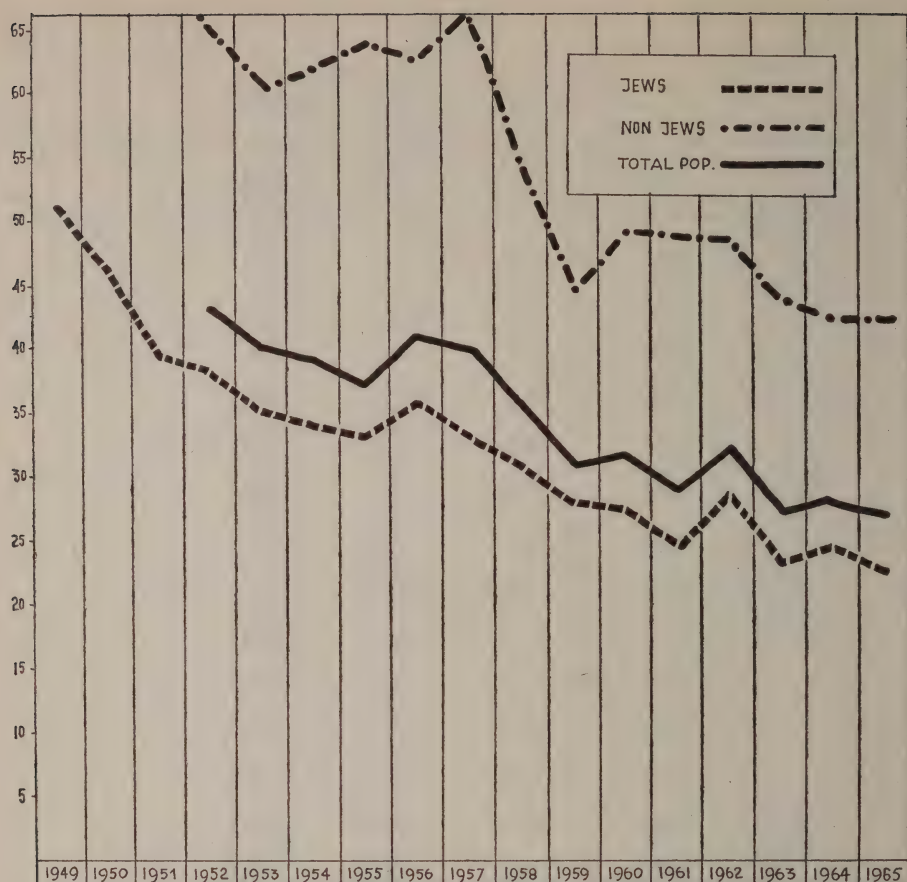


Figure 1. Infant Mortality Rates, 1949-1965 (See note to Table 5).

TABLE 6

INFANT MORTALITY RATES IN NEWLY ESTABLISHED IMMIGRANTS' SETTLEMENTS,
COLLECTIVE SETTLEMENTS AND ALL TYPES OF SETTLEMENTS — JEWS, 1950-1963

Type of Settlement Year	Newly established Immigrants' Settlements	Collective Settlements (Kibbutz)	All Types of Settlement
1950	157.8	23.1	46.1
1951	82.0	16.5	39.2
1952	63.8	21.9	38.7
1953	51.4	23.0	35.7
1954	48.9	23.6	34.1
1955	46.7	19.2	33.6
1956	49.9	21.4	35.6
1957	41.3	23.1	33.4
1958	38.4	23.5	30.7
1959	30.5	14.2	27.7
1960	29.6	16.8	26.9
1961	27.0	20.5	24.2
1962	30.2	19.0	27.5
1963	21.6	15.0	22.7

Stillbirth rates as well as neonatal death rates among the Jewish population declined with the declining total infant mortality rate from the year 1949 through 1966. The decline in infant mortality was greater in the post-neonatal period; the proportion of infants dying in the first month to the total deaths in the first year was 43.7 in 1949; the ratio rose to 67.4 in 1966.

In the non-Jewish population, the stillbirth rate is slightly lower than in the Jewish population. Whilst the total infant mortality declined from 62.5 per 1,000 live births in 1955 to 38.2 in 1966, the ratio of the neonatal mortality to the total infant mortality rose from 27.6 in 1955 to 38.1 only in 1966. In the Jewish population the low infant mortality declined by 30% from 1955 to 1966, whereas in the non-Jewish population the decline was 39% in the same period.

TABLE 7
STILLBIRTHS, NEONATAL AND INFANT MORTALITY RATES;
JEWS, 1949, 1950, 1955, 1960, 1964, 1965, 1966

Rates of	1949	1950	1955	1960	1964	1965	1966
Stillbirths ¹	18.6	17.3	13.6	13.0	14.2	14.2	13.7
Deaths in first month	22.1	22.7	16.7	16.3	15.6	15.4	14.6
Total deaths in first year	51.7	46.2	33.6	27.0	23.9	22.7	22.4
Ratio:							
First month to total first year in per cents	43.7	49	50	60.4	65.2	67.5	67.4

¹ Rates per 1,000 live-births

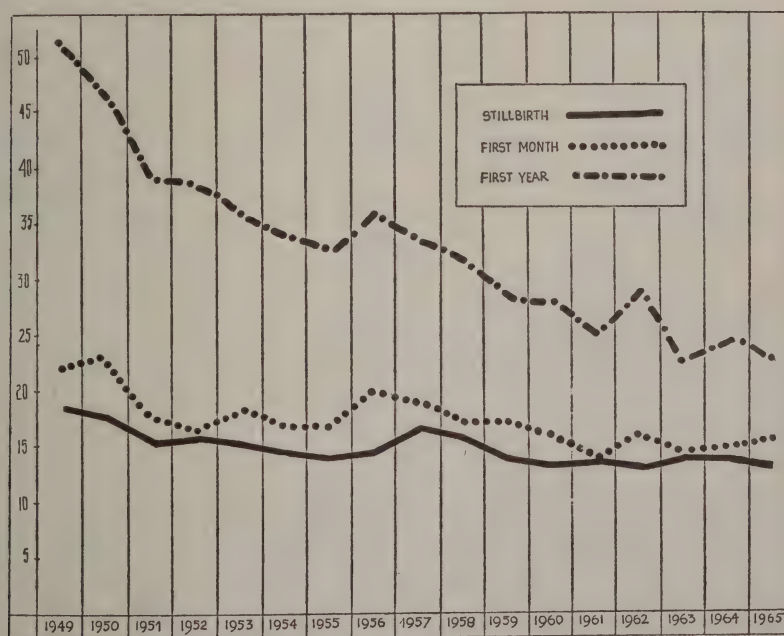


Figure 2. Stillbirths, Neonatal and Infant Mortality Rates, Jews; 1949-1965.

TABLE 8

STILLBIRTHS, NEONATAL AND INFANT MORTALITY RATES;
NON-JEWS, 1955, 1960, 1964, 1965, 1966

Rates of	1955	1960	1964	1965	1966
Stillbirths ¹		11.9	12.2	15.0	13.7
Deaths in first month	17.3	17.8	16.7	16.9	14.6
Total deaths in first year	62.5	48.7	42.6	43.4	38.2
Ratio:					
First month to total first year in per cents	27.6	36.5	39.2	39.1	38.1

¹ Rates per 1,000 live-births

Between 1948 and 1966, the number of infant deaths caused by infectious and parasitic diseases declined by 52%, of those caused by pneumonia, bronchitis and influenza by 48%, and of those caused by gastroenteritis by 120%. Congenital malformations and all other conditions related to birth, pre-natal disturbances and early infancy caused 50.8% of all infant deaths in 1948, and 74.1% in 1966.

TABLE 9

MAIN CAUSES OF INFANT DEATHS — PERCENTAGES
JEWS, 1948, 1960-1966

Cause of Death	1948	1960	1961	1962	1963	1964	1965	1966
All causes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Infectious and parasitic diseases	6.1	2.4	2.1	3.7	1.9	2.0	1.6	3.2
Pneumonia, bronchitis and influenza	12.4	9.5	12.6	10.3	8.5	9.8	6.7	6.1
Gastroenteritis	23.2	8.1	8.0	11.4	6.2	4.5	5.0	5.1
Congenital malformations, and other conditions related to prenatal disturbances, birth and early infancy	50.8	69.6	67.5	63.9	73.5	72.4	74.3	74.0
All other diseases	7.5	10.4	9.8	10.7	9.9	11.2	12.4	11.6

Maternal and Child Health Station, Judean Hills



Routine Examination at Rural Well Baby Clinic







Premature Ward at WIZO Mothercraft and Training Centre



Girl Soldier Acting as Health Educator

Nutritional Instruction for Newcomers





Health Education in Arabic





School Health

Education Materials





Accident Prevention

Posters



TABLE 10

DEATHS OF INFANTS WITH MENTION OF PREMATUREITY AS CAUSE OF DEATH;
 RATES PER 1,000 INFANTS LIVING; JEWS, 1950, 1960, 1964, 1965, 1966

Cause of death \ Year	1950	1960	1964	1965	1966
All causes of death	46.2	27.2	23.9	22.7	22.4
Prematurity mentioned	10.9	7.7	6.4	7.21	7.56
Ratio: Prematurity to all causes of death, (in percentage)	24	28	27	31.7	35.1

For the second year of life, the death rate was 6.7 per 1,000 in 1950 among the Jewish population, and 1.7 in 1966. In the 1-4 age group the death rate in 1966 was 1.0 per 1,000, with accidents as the chief cause of death, and disease of the respiratory system as the second cause. In 1950, the death rate in the age group was still 3.9. In the same age group undernutrition was fairly common, often associated with gastroenteritis; so was iron deficiency anaemia. There has been satisfactory improvement in recent years.

Schoolchildren

The relatively high birth rate in the early 'fifties, especially among new immigrants, has multiplied the number of schoolchildren. A school census at the end of 1964 showed 523,650 children of compulsory school age (5-14 years), five times as many as in 1948. This increment has taxed educational and health facilities.

In 1966, the mortality rate in the age group 5-14 was 0.4 per 1,000 for the Jewish population and 0.7 for the non-Jewish. External causes were the main reason of death in both groups; next ranked malignant neoplasms. Rheumatic fever and rheumatic heart-disease are a serious problem in these age-groups. Asthma is still common among schoolchildren; so are communicable diseases of childhood and respiratory infections. Defective vision is more frequent than any other defect.

Learning difficulties and emotional disturbances still present a complexity of problems. Diseases such as trachoma and ringworm of the scalp, once very widespread among immigrant children and Arabs, have by now been brought under control.

MOTHER-AND-CHILD HEALTH SERVICES

Maternity Service

This service is geared to provide supervision for every pregnant woman, including physical examinations, laboratory services, chest X-ray examination, guidance in hygiene during pregnancy, advice on nutrition, counselling on family and social problems, and planning for delivery and post-natal care. The work is done by teams of physicians and public health nurses. There are centres in which obstetrical consultation is given by house obstetricians from hospitals, with supplementary examinations, where necessary, by other specialists.

In 1966, the centres served 44,423 expectant mothers, about 64% of all pregnant women. In 1949, 5,400 mothers, 57% of all pregnant women, came under their supervision. In 1966, the average period of supervision for women registered with the centres was 6.08 months; on the average, the pregnant woman came to the centre 7.17 times, was examined 2.61 times by the obstetrician and visited in her home 1.82 times by the public health nurse.

The Obstetrical Association of Israel has a permanent committee to investigate maternal mortality; its recommendations have contributed to a reduction in the incidence of preventable maternal deaths. Pre-natal dietary surveys and anaemia studies are carried on among different population groups by the obstetrical departments of hospitals and by district public health offices.

TABLE 11
MONTHLY NUMBER OF PREGNANT WOMEN UNDER SUPERVISION
OF MOTHER AND CHILD HEALTH CENTRES
JANUARY-DECEMBER, 1966

Operating Agency	Number of Pregnant Women under Supervision
Ministry of Health	14,218
Kupat Holim	4,700
Municipality of Tel Aviv-Yafo	2,015
Municipality of Jerusalem	1,353
Hadassah Medical Organization	207
Others	109
Total	22,602

Infant and Pre-School Services

In 1966, 56,583 infants (representing about 84.7% of the infant population) and 182,114 toddlers (about 70%) were under the supervision of the centres. The figures for 1949 were 29,000 infants (77%) and 1,400 toddlers (a negligible percentage).

There are now few villages without a centre; mothers, before discharge from maternity wards, are referred to the nearest one, and the public health nurses visit them immediately after their return home.

The immunization programme in 1948 consisted of compulsory vaccination against smallpox and voluntary immunization against diphtheria. Voluntary immunization against tetanus and whooping-cough was subsequently added, and, in 1957, immunization against poliomyelitis, first by Salk-vaccine and later by Sabin-vaccine, was introduced. BCG vaccination against tuberculosis has been given since 1956 to every newborn child, while he is still in hospital.

Mothers are guided in matters of nutrition, general care and child-rearing. Prophylactic measures are taken against rickets and anaemia. The centres conceive their paramount responsibility to be prevention of disease and promotion of the optimal development of the child in terms of full physical and emotional health. Nevertheless, simple forms of digestive disturbances and all other kinds of mild disorders are also treated. When it is necessary to refer a sick child to a curative service, a smoothly functioning follow-up is assured, so that continuity of care is guaranteed. The feeding problems of undernourished children get special attention and a variety of methods is tried out to overcome them. Over the years, the work has more and more taken on an educational character, based on the concept of child development, and viewed against the background of family, community and society. Parents are given assistance in the management of child behaviour and are helped to build up a good parent-child relationship.

Statistics show that infants are brought to the centre on the very high average of 16 times during the first year of life; they are examined by the doctor two or three times; and visited at home about three times a year by the public health nurse. Children of 1-4 years of age visit the centres only three times a year; they are seen by the doctor on an average twice a year, and visited at home by the nurse three times.

TABLE 12
AVERAGE MONTHLY NUMBER OF INFANTS AND CHILDREN (1-4)
UNDER SUPERVISION OF THE MOTHER AND CHILD HEALTH CENTRES,
JANUARY-DECEMBER, 1966

Operating Agency	Number of supervised	
	Infants	Children (1-4)
Ministry of Health	36,727	113,617
Kupat Holim	11,023	34,792
Municipality of Tel Aviv-Yafo	3,921	12,769
Municipality of Jerusalem	3,689	13,454
Hadassah Medical Organization	358	1,313
Others	338	397
Total	56,056	176,342

School Health Services

These are assigned, generally, to the agencies which provide all the other preventive services for mothers and children. The only exception is in Tel Aviv, where the municipal Department of Education is in charge of school health services.

TABLE 13
SCHOOL HEALTH SERVICES, 1966

Operating Agency	Schools	Pupils
Ministry of Health	790	270,929
Kupat Holim	202	69,100
Local Authorities	255	98,213
Hadassah Medical Organization	5	2,236
Other	1	1,198
Total	1,253	441,676

The services are planned and operated in close cooperation with the Departments of Education. In 1964/65, 441,676 pupils were covered by them, constituting 78.2% of the school population—87.4% of all elementary pupils, and about 50% of all vocational and high school pupils.

The work is essentially preventive in nature, to maintain and improve the health of the child, whose need for physical, emotional or social care is the concern of the school health team, consisting of a physician and a public health nurse. The health status of pupils is appraised and remedial correction of defects is encouraged. Handicapped children are given special heed and advice on their educational requirements.

The control of infectious diseases in schools, including immunization against smallpox, diphtheria and tetanus, and BCG vaccination, is a duty of the services. So is the evaluation of the health and fitness of pupils for participation in strenuous sports.

In the area of health education, it is the intention of the services to help children during their formative years to gain an understanding of what good health means and how it is achieved and preserved. In the last few years, the teacher has taken a much larger part in the programme. Health education has been introduced into the curricula of teacher training colleges and of elementary schools. In consequence, it is becoming more tightly interwoven in practice with education itself. 'Health Weeks' are organized in schools every year, revolving around such important subjects as nutrition, accident prevention, physical education and recreation.

The safety and hygiene of school buildings and grounds are of major concern to the health team. Sanitary inspections produce recommendations for improvement, but implementation has not always followed and progress was slow, owing to shortage of funds and the multitude of competing needs to be met.

CARE OF THE HANDICAPPED CHILD

In the early fifties, a start was made with rehabilitation of handicapped children: locating them and providing facilities for diagnosis and for medical, surgical, corrective, social and follow-up care.

Poliomyelitis Rehabilitation

This began with the outbreak of poliomyelitis in 1950. In the following eight years, about 6,000 children, almost exclusively between the ages of six months and four years, were stricken, with a mortality of 11%. The epidemic left about 2,000 children of severe and moderate incapacity in need of rehabilitation and care over a period of years.

The orthopaedic rehabilitation programme is the oldest and best developed. By and large, coverage is excellent and continuity of care is good. Orthopaedic clinics for evaluation, treatment and provision of braces were opened. Well-

staffed and well-equipped hospitals served as centres for short-term care, physiotherapy, reconstructive surgery and post-operational rehabilitation.

For the severely handicapped, requiring long-term hospitalization for rehabilitative and social reasons, a voluntary agency offered the facilities of its institution.

Braces were provided to mobilize the handicapped and make them independent; the Government bears half the cost of the appliances.

The emotional impact of disability on the child's growth and development was well understood, and the threat to the parent-child relationship no less; case-workers and public health nurses tried to help by counselling the afflicted families.

Cerebral Palsy

Once less care was required by the victims of polio, the time seemed to have arrived to embark on rehabilitation of victims of cerebral palsy. The Government's rehabilitation centre for children at the Assaf Harofe hospital widened its scope to provide assessment and intensive treatment for children with cerebral palsy on an in-patient and an out-patient basis. The children, suffering from complex and often multiple handicaps, were thoroughly examined by a multi-disciplinary staff, and their treatment was started with physiotherapy, occupational therapy, speech and hearing training, provision of appliances and special educational facilities.

This rehabilitation service gave an impetus to similar undertakings in other parts of the country, in association with an organization formed by parents of children with cerebral palsy.

Hearing and Speech Disorders

This programme for the pre-school deaf child is conducted almost entirely by two voluntary agencies, Hadassah in Jerusalem and Micha in Greater Tel Aviv. Micha has developed the instruction of deaf children in speech and language to a very high degree by means of auditory training and individual binaural aids. Its nursery school programme helps the child in its social and intellectual growth and adjustment and prepares him for an ordinary kindergarten environment. Special emphasis is given to the guidance and training of parents, to aid in the development of their children's speech.

Rheumatic Fever and Rheumatic Heart-Disease

There are cardiac clinics in the major cities and at several out-patient departments of hospitals; diagnostic services for children are available there.

Children are very often referred to a clinic by the school health services for diagnosis, treatment and follow-up.

Hospital care is provided where necessary, and so is surgery. The public health nurses of the school services are engaged in the follow-up work and in carrying out long-range penicillin prophylaxis.

Conservation of Vision

Case-finding by vision-screening in all schools is followed by accurate ophthalmological diagnosis in clinics, and children in need of glasses are provided with them.

SCHOOL DENTAL HEALTH SERVICES

Voluntary services of this kind for the Jewish population were rendered in Jerusalem, Tel Aviv and Haifa during the days of the British Mandate. On the initiative of the local dental societies, clinics for schoolchildren were opened in the three cities, eventually to become a basis for the establishment of the present municipal services.

In the early years of Israel's statehood, a project to encourage the setting up of local school dental health services was launched by the Mother-and-Child Health Unit of the Ministry of Health. It started with helping local authorities, especially in immigrant villages and developing areas, to establish dental services for children by the loan of equipment, by advice and supervision, and, if necessary, by grants. At the same time, a reporting system was designed as a first step towards coordination of all the existing services for schoolchildren. Visual teaching aids and a guide for dental health education had been developed, and campaigns for oral hygiene of children conducted in several towns.

The project was in due course expanded by the appointment of a full-time dental surgeon to act as adviser and as supervising coordinator. At that juncture, emphasis was placed especially on that part of the programme dealing with the establishment of school dental health services for communities that were still without them.

With the cooperation of the District Health Offices of the Ministry and the local authorities, it was arranged that, at regular intervals, the supervising coordinator should visit each community where a service was envisaged, or where one had not yet been successfully installed. Established services were inspected and examined as well, with a view to pooling experience.

As the financing, administration and maintenance of each community's service depended to a large extent on the community itself, the tactical task of founding and advancing each new service turned not a little on the conditions

that prevailed in the individual community. After a study of available facilities and the predisposing circumstances of each place, a report was written which set forth the practical steps necessary for the establishment of a service, or which evaluated the effectiveness of the one existing. In all, forty-five communities with populations of over 5,000 each, and some smaller ones were visited and, after analysis of their needs and resources, clinics were opened in their schools.

Thus, systematic dental examinations and organized clinical treatment in local dental health services have by now been extended to take in the school-children constituting approximately 72% of the total elementary enrolment.

The services provide the following:

- (a) dental examination of every child in primary school, in all age groups;
- (b) notification by letter to the family of any child that requires dental treatment;
- (c) comprehensive treatment of all children (not attending private dentists) through an incremental programme of care, priority being given to the youngest children ;*
- (d) emergency dental treatment outside the organized schedule;
- (e) regular re-examination of each child, with further treatment as required to ensure continued maintenance of dental health.

In some of the old-established services, with the passage of time, the application of these measures has enabled the clinic personnel to overcome the accumulated needs of the elementary schoolchildren and bring their collective dental health up to a maintenance level. This, in turn, has made it possible, with the available facilities, to extend coverage to secondary schools and public kindergartens. Moreover, as additional specialized personnel are taken on, some local authorities have instituted auxiliary orthodontic services for treating children referred by the school clinic.

It is the present aim to bring about that situation, wherever feasible, in all the communities of Israel. In this respect, the curative side of the national programme is in substantial accord with the order of priorities drawn up by the World Health Organization's Expert Committee on Dental Health¹.

The programme gives first priority to children of primary-school ages, second to children of secondary-school ages, third to children of pre-school ages and last priority to other groups.

* This does not include orthodontic treatment.

¹ WHO Technical Report Series No. 298, World Health Organization, Geneva, 1965.

The educational aspect of the programme has three phases:

1. *Within the school*

- (a) Classroom instruction on the importance of oral health and dental hygiene through lectures by the school dentist, the public health nurse and the teacher, using materials supplied by the Ministry and by other sources.
- (b) Routine teaching by the public health nurse, in the classroom, of the correct tooth-brushing technique.
- (c) Dental health exhibits in schools during 'Health Week' campaigns.

2. *Outside the school*

- (a) Talks by school dentists during parent-teacher association meetings.
- (b) Visits by the school nurse to the homes of children with special dental problems, to discuss them with the family.

3. *Training of personnel*

- (a) Training in public health dentistry and in preventive and children's dentistry is included in the curriculum of studies for students in the Hebrew University - Hadassah School of Dental Medicine, Jerusalem.
- (b) A series of postgraduate lectures for public health dentists in the field has been organized by the Dental Section of the Tel Aviv University's Faculty of Continuing Medical Education. All school dentists have been encouraged to attend.
- (c) A series of meetings of school dentists has been organized on a country-wide scale, where lectures, demonstrations and group discussions are arranged.
- (d) A school for the in-service training of dental assistants has been opened in the school dental health service of Tel Aviv. Dental assistants from all other local services are urged to attend the special evening courses there.

Since the majority of the dentists in the school health services have come from different parts of the world and had their professional training in a variety of dental schools, the approach, and the methods of recording the necessary statistical data, likewise vary considerably. Also, in the absence of any precedent, some of the older services have evolved their own particular systems of statistics. An endeavour is made to standardize statistical procedures which will agree in essence with the methods recommended by the Expert Committee of WHO.

It is hoped that, as more money and manpower are forthcoming, the possibility will be realized of establishing special research projects within the services.

From the point of view of prevention, the study of fluoridation processes (involving drinking water, topical applications, and the like), and their feasibility or practicability in Israel, could be useful. Furthermore, within the curative phase of the programme, having regard to a changing incidence of dental defects among school children, manpower studies to ascertain the effectiveness of different norms of treatment personnel per child population are under consideration, as well as studies of the most profitable use of para-professional help to augment the 'productivity' of the school dentist in the clinic. There is room, too, for a longitudinal growth study of dentition of schoolchildren. The effects of certain treatment or non-treatment procedures, as related to malocclusion, need clarification.

INSTRUCTION IN NUTRITION AND PROVISION OF MEALS IN SCHOOLS

Ever since the 1930's, Jewish primary schools in Israel have been providing their pupils with mid-day meals, and with instruction in nutrition as well. With the active help and guidance of the School Luncheon Fund of Hadassah, some 100 teaching kitchens were operated in the pre-State period. As immigration swelled, the Ministry of Social Welfare opened central kitchens which prepared one meal a day for immigrant children at schools which did not have teaching kitchens.

In 1953, nutrition activity in schools was centralized in the Nutrition Department of the Ministry of Education and Culture. In those very years thousands of newcomers, many in poor health, poured into Israel, bringing with them a wide variety of dietary habits, not all suited to the local climate or produce.

In the light of a rapidly changing demography and the actual situation as to food supply, nutritionists and dieticians directed themselves to the achievement of two goals — nutritional and educational:

- (a) to ensure a nourishing meal, conforming to nutritional principles, for schoolchildren who were in need of such supplementary feeding for social, health or financial reasons;
- (b) to teach school children the elements of nutrition and of proper dietary habits, adapted to local conditions.

The best way to realize both aims was seen in setting-up a teaching kitchen in every school already providing meals.

In primary schools where a teaching kitchen exists, a qualified teacher who has undergone pedagogical-vocational training gives the upper classes theoretical and practical instruction in nutrition. Girls and boys in the seventh and eighth grades are taught the theory of nutrition for one hour each week. The curriculum includes the study of basic food elements, of foodstuffs, and of correct feeding.

In the practical lessons, a group of ten boys and girls from grades six, seven and eight, under the tuition of the nutrition teacher, spend four hours preparing luncheon for 100 to 150 pupils.

Not only are the children taught to cook but the teaching kitchen furnishes the direct link between their theoretical studies and the actual practice of nutrition. They acquire both general knowledge and educational values, for example:

- (a) familiarity with different foods, their nutritional content, and ways of preparing them;
- (b) the value of food in protecting the body's health and ensuring its normal development;
- (c) food hygiene, and personal hygiene in handling food;
- (d) advantageous selection of foods according to price, season and local availabilities;
- (e) safety rules in dealing with fire and in handling tools and appliances;
- (f) nutritional education: imparting proper dietary habits and overcoming ignorance and prejudice against unfamiliar foods;
- (g) table manners;
- (h) education towards group work, mutual help, precision, order, responsibility, reciprocal service.

Instruction in Nutrition

Instruction in the theory and practice of nutrition is given in two forms:

- (a) through the teaching kitchen, as described;
- (b) study of nutrition in home-economics courses, in schools that do not have a teaching kitchen.

In 1960/61, 220 schools taught nutrition, in 1965/66 the number was 300.

TABLE 1
THEORETICAL AND PRACTICAL INSTRUCTION IN NUTRITION IN 1964/1965

Number of Schools	Theoretical	Practical
	Instruction was given in	
300	850 classes	1,550 classes

The children who learn nutrition and cooking in school exert a wholesome influence on nutrition in the home. White cheese and milk that some have grown to like at school, are introduced into the daily menus of many families.

A second kind of kitchen to feed large numbers of children of all ages, from the very young to adolescents, came into being under the rising pressure of immigration, natural increase and the introduction of the long school day. Lack of suitable buildings, of vocational teachers and of the funds necessary for operating teaching kitchens are impeding factors.

The Scope of the School Meal Programme

The programme has grown over the past ten years and now embraces some 160,000 children — 120,000 in primary schools, and 40,000 in kindergartens and post-primary classes. Half of the primary school population in question, almost 60,000 boys and girls, attend teaching kitchens. The rest continue to receive meals in central kitchens.

No payment is required from most of the children who are referred to the programme for either health or economic reasons. They are selected by a committee composed of the school principal, the public health nurse (of the school) and a representative of the local authority.

The school meal is designed to supply one-third of the daily requirements as recommended by international bodies.

The cost amounts to 26.6 agorot (8.87 US cents) per child per meal. For reasons of *kashrut* (ritual observance), only dairy meals and fish are served.

The principal sources of animal protein are cheese, milk (powdered milk), eggs and fish. Fruits and vegetables, the main source of vitamins and minerals, are supplied according to season.

TABLE 2
FOOD BASKET FOR SCHOOL LUNCHEONS, 1965/1966
AVERAGE COST PER MEAL — 26.6 AGOROT

Commodity	Weight (grams)	Cost (agorot)
Powdered milk	20	2.04
Lean cheese	20	2.26
Fish (fillet)	20	3.96
Egg	1/4	1.75
Sugar and jam	10	0.74
Oil and margarine	10	1.08
Legumes and cereals	30	2.27
Bread (standard)	75	2.75
Fruits and vegetables	100	5.50
Others		4.25
Total		26.60

(One agora is 0.33 U.S. cent).

In kindergartens where no mid-day meal is served, the introduction of a more nutritious mid-morning snack has been recommended to include a glass of milk or cocoa, and sandwiches.

TABLE 3
ENRICHED MID-MORNING SNACK FOR KINDERGARTEN CHILDREN, 1965/1966
FOOD BASKET, AVERAGE COST PER MEAL — 10 AGOROT

Commodity	Weight (grams)	Cost (agorot)
Powdered skim milk	20	0.34
Sugar	10	0.66
Bread	75	2.75
Margarine	10	1.10
Egg	1/6	1.30
Cheese	10	1.15
Vegetables	30	1.70
Others		1.00
Total		10.00

Besides the luncheon, it has been customary for many years in a number of schools to serve a glass of milk or cocoa at ten in the morning. In 1965/66, over 30,000 pupils received this supplement.

Among the activities of the Ministry of Education and Culture mention may be made of the nutritional supervision of boarding schools, such as agricultural schools, Youth Aliyah and welfare institutions as well as talmudical colleges. Guidance and advice in this sphere are given to some 250 institutions which serve three meals and a snack each day.

SPECIAL EDUCATION

Special education in Israel was instituted as a separate service by the Ministry of Education and Culture in June 1950. Even before the establishment of the State, a number of schools and classes for abnormal children had been started in Tel Aviv, Jerusalem and Haifa, maintained by public, semi-public and private organizations. When the special education network expanded in all its ramifications, it came under the supervision of the State in 1950, as an independent statutory unit under the Compulsory Education Law, 1949.

The factors responsible for the rapid development of special education have been (a) large-scale immigration, which included many problem children, and (b) the wider availability of facilities for dealing with handicapped children under the instruction and supervision of the unit.

The Ministry's policy is educational rehabilitation and preparation for full entry into the normal life of the community.

The service does not limit itself to the classification and placement of children. It tries to help every child who, by reason of intellectual, emotional, physical or social disability, cannot adjust himself to the society of normal youngsters. It endeavours to extend its aid beyond its own ambit through a staff of educational psychologists and supervisors who advise and train teachers in ordinary schools how to deal with different types of children.

For the classification of children before their transfer to special classes or schools, the Ministry operates a supervisory psychological testing centre and several psychological testing stations to ascertain the Intelligence Quotient of children with serious school troubles, as well as of the emotionally disturbed and maladjusted. A mixed population with greatly contrasting cultural backgrounds, such as in Israel, presents many difficulties in the standardization of tests.

For testing, an Israeli adaptation of the 'Wechsler Intelligence Scale for Children' is mostly used, in addition to such other verbal and projective tests as the Terman, Binet, Bender, 'Visual Motor Gestalt' Goodenough 'Draw a Person', 'Thematic Apperception' and Rohrschach tests.

Children are placed in a variety of educational settings:

(a) *Backward children*

1. Idiots are placed in boarding institutions maintained, for the most part, by the Ministry of Social Welfare, or in private institutions supported jointly by that Ministry and the Ministry of Education and Culture.
2. Severely mentally retarded imbeciles: those in the lower category are usually sent to boarding institutions supported by the same two Ministries; those in the higher category attend special day-schools.
3. Morons are, as a rule, placed in special day-schools or special classes in regular schools. Classes are provided for the vocational training of mentally retarded children, aged 14 to 16, who complete the special primary schools: boys are trained in carpentry and other branches of wood work, and in metal-work; girls in sewing, machine-knitting and weaving.

(b) *Emotionally disturbed and socially maladjusted children*

These may be placed in schools attached to psychiatric hospitals, in day-schools for emotionally disturbed or in day-schools for delinquent and neglected children, where specially trained teachers are guided by psychiatrists and inspectors of education.

(c) *Physically handicapped children*

1. *Blind children* may be placed (a) in boarding schools; (b) in Braille day-classes; or (c) be educated at home by visiting teachers. The placements are made according to the particular requirements and social backgrounds of the children. Totally blind children, coming from homes which are able and willing to pay for them, are placed in Braille day-classes in ordinary schools. Blind children of the Arab communities are often visited by a special teacher; they are taught in Braille and their teachers are trained to look after them. The aim in the Braille classes and in the treatment of Arab children is rehabilitative and integrative from the child's admission to school. The children live in their natural environment in their parents' homes and attend the ordinary classes to which they belong according to their age.

The Jewish Institute for the Blind in Jerusalem is a boarding school serving the whole country. Its objective is to provide general education and pre-vocational training for blind children. Recently, a one-year industrial class has been established where technical skills are taught. Its programme now offers training in the operation of IBM punch-card machines.

The inspector of education of the blind in the Ministry of Education and Culture maintains permanent contact with all primary and secondary schools attended by blind pupils. He advises the teachers and supplies Braille-printed textbooks, typewriters and other material.

2. *Deaf children* attend kindergartens and special schools for the deaf. While the number of blind children is diminishing, the number of deaf children is still high. Kindergartens and classes in several regular schools have been opened for deaf and hard-of-hearing children, where they learn a great part of the syllabus together with normal children of their age. Special teachers work on the development of the voice and speech.

3. Children who are victims of *infantile paralysis* (polio) or *spastic paralysis* are placed in special schools, and facilities for them exist in some hospitals. This system will be expanded for cerebral palsy cases. Already schools and kindergartens have been opened for children unable to attend regular schools. Only mild cases are directed to regular primary schools. Children who cannot attend school and need special care are admitted to special day-homes, where they receive proper care. Adolescent girls and boys work in sheltered workshops at various branches. For specially severe cases of paralysis or other diseases, radio-telephone apparatus is available to connect a bed-ridden child to the school and to his class, so that he can take an active part in the lessons.

4. For *children confined to hospital* for prolonged periods, teachers are provided who tutor them during their hospitalization and keep contact with the schools which they used to attend.

Not all children who require it, however, get special education: adequate facilities are lacking, and so are financial resources and competent teachers with proper training.

A teacher engaged in special education is expected to have, over and above his general training, a warm and human approach, and pedagogical intuition. He has to acquaint himself with a gamut of communities, the contrasts in their standards of living, their disparate ways of life and mentalities. To be sure, all this knowledge is essential to the regular teacher as well, but the intricate and heterogeneous composition of the communities makes it important to the special education teacher.

Facilities for the training of special education teachers consist of courses given by the Ministry of Education and Culture and the Hebrew University of Jerusalem, and of in-service training given in the form of one-year courses in Tel Aviv and Haifa. The latter comprise 8 to 12 hours' study a week throughout the year, the emphasis being on subjects not covered in the regular teachers' training colleges. The intention is to include special education in the curriculum of all teachers' training colleges, in the form of one or two years of specialization.

Until recently, teachers for the physically handicapped, the deaf, the blind, and the chronically ill had to acquire their expertise abroad or empirically by practice in their work.

Teachers who have had special education training receive an allowance of 10%-20% of their basic salary.

The number of children attending special education classes or schools, either day or boarding institutions of all kinds, was 20,654 in 1966/67, that is, approximately 3.1% of the child population aged 5-14 years.

SPECIAL EDUCATION BY TYPE OF SCHOOLS AND TYPE OF PUPILS, 1966-67

	Number		
	Schools	Classes	Pupils
A. Type of Schools			
Special Schools	117	756	11,032
Regular Primary Schools	363	516	8,519
Residential Schools	21	106	1,103
Total	501	1,378	20,654
B. Type of Pupils			
Mentally Retarded		823	13,855
Severely Mentally Retarded		131	1,295
Emotionally Disturbed		293	4,248
Blind		13	129
Deaf-Mute		64	480
Physically Handicapped and Chronically Ill		54	647
Total		1,378	20,654

PSYCHIATRIC AND MENTAL HEALTH SERVICES

The mental health and psychiatric needs of Israel, and the services organized to meet them, have been greatly conditioned by the social history of the country.

The rapid growth of the population and the unusual demographic composition created exceptional demands on psychiatric and other services.

Since 1948, in the face of an ever-present and urgent need to incorporate masses of immigrants coming in an unbroken stream, the State has managed to develop rapidly a network of mental health services and activities which are still in continuous expansion. The expansion has been accompanied by a planned move towards decentralization, in an attempt to bring the services as close as possible to the individual and his family.

In the endeavour to organize adequate services, there seems to have been general agreement that the patient benefits most from a therapeutic environment which provides him with individual support and understanding of his particular problem and an appreciation of his relation to his family and to the social group from which he comes. At the same time, the idiom of cooperative living in Israel made its significant impression on curative psychiatric techniques.

All types of psychiatric hospitals, especially the work villages and other long-stay institutions, naturally employ group forms of patient activity and therapy. The hospital community is encouraged to assume the social forms of normal communities. This lessens the emphasis on purely medical methods with their tendency to isolation of the patient. Social action on the part of the patient is promoted by a multi-disciplinary treatment team, endeavouring to influence the relevant forces playing a part in the patient's personality and life.

IN-PATIENT FACILITIES

Prior to 1948, only a small number of mental hospital beds were available. There were two mental hospitals founded by Jewish initiative — one in 1895

in Jerusalem by the Ezrat Nashim Women's Society, and the other (Gehah hospital near Tel Aviv) in 1942 by the Histadrut Sick Fund. Two mental hospitals, one for men and one for women, were set up by the British authorities towards the end of the Mandate. (Only one of the two, Bat Yam, was included in Israel territory.) A number of small private institutions, mostly sub-standard, with a total bed-strength of 780 beds, existed before the establishment of the State. Chronic cases were sent to these institutions from the four larger mental hospitals. In January 1949, the total bed-strength was 1,197 beds, of which 208 were governmental, giving a ratio of 1.32 per 1,000 of population.

From August 1948, during the Israel War of Independence, psychiatric installations of several types were established for soldiers within the Army framework. These services provided care in ambulant and in-patient forms for servicemen, especially those who had suffered from battle-stress. As a part of this programme, two psychiatric wards were set up in general hospitals in the North and the South. A special centre for milder reactions was established in Yafo. At the end of the fighting, these institutions were transferred from the Army to the Ministry of Health and became the cornerstone of the State psychiatric and mental health services for the whole population. In 1950, the Histadrut Sick Fund opened a hospital (Talbieh) in Jerusalem for active treatment. This has been affiliated to the Medical School of the Hebrew University.

Thus, Israel's psychiatric services developed from three sources:

- a) the civic effort to provide services within the Jewish National Home before statehood;
- b) the Mandatory establishments;
- c) the military psychiatric installations developed immediately after statehood was gained.

During the years 1949-1954, these rudimentary services were expanded and reorganized by the Division of Mental Health of the Ministry to meet the urgent needs arising from the inordinately swift growth of the population. Immigration was not selective and brought many psychotic and defective individuals. Often, these patients had been neglected in hospitals and other situations for years. But, in every case, they came from a situation to which they were adjusted in a certain sense. Therefore, they showed reactions and disturbances in Israel, consequent on their displacement, as well as the deterioration following neglect.

From their inception, the State hospital services were based upon definite principles of psychiatric practice: early diagnosis and continuity of care, if possible in the community, and an interdisciplinary 'team' approach to the problems of the patient and his family. In the programme of regionalization of

the hospital facilities, each region would be provided with an interlocking range of functionally distinct facilities, comprising: psychiatric wards in general hospitals, psychiatric hospitals (for short-term care); work villages (for long-term rehabilitation); rehabilitation centres (for the treatment of neurotic patients); custodial services; geriatric services; and services for child psychiatry.

The implementation of the plan for psychiatric hospital facilities was accompanied by a very serious shortage of beds, patient neglect and marked tensions in the patients' families and communities, as well as among professional personnel. In spite of this, staff was trained and organized, and facilities were founded in such a way as not to crowd out the basic principles of modern community psychiatry.

Psychiatric Wards in General Hospitals

These were established during the decade 1950-1960 in the Government hospitals in Haifa ('Rambam') and near Tel Aviv ('Tel Hashomer'). These wards, with a total of 90 beds provide short-term intensive treatment, using a high concentration of staff. They admit patients with early psychoses, specially of the passingly depressive type, and with serious neurotic and psychosomatic reactions. The out-patient and after-care facilities attached to these wards soon became a feature of the care, and the wards are so managed as to treat successfully an increased number of serious cases. Later on, a similar department, though with less beds, was opened in the Hadassah-University hospital in Jerusalem.

The psychiatric wards contributed considerably to the integration of mental health principles in general medicine, the reduction of professional and popular prejudices and the development of satisfactory communication between the psychiatrist and the community.

Psychiatric Hospitals

While an attempt was made to place the psychiatric hospital as close as possible to the main concentrations of population, this was not possible in most cases, because of the lack of available and suitable buildings in the towns. The first such hospitals were at Bat Yam, Be'er Ya'akov and Akko. They provided emergency services of every type, especially during the strained days of mass immigration. Nonetheless, they were able to fulfil their function as small (300-400 beds) short-stay hospitals, intensively rehabilitating relatively large numbers of patients and making growing contact with the communities they served. Rehabilitation of patients was at first an uphill struggle, because the communities themselves were unsettled or not yet formed. In

spite of these pressures, the hospitals retained their essential humanity and group spirit and even their 'open' quality.

An excellent relation was fostered between the general community services and the hospitals. With the growth of Israel's new communities, an increasingly positive relation has developed between them and the hospitals, and the services play a basic role in the community care of patients which has grown around the hospital practice.

Work Villages

The accumulation of long-standing and often deteriorated cases of chronic psychotics coming in with the waves of immigration focussed special attention on their needs. Since institutions were being established without any particular tradition, it was possible to consider a special type of approach to the hospital care of the chronic psychotic, which took the form of the 'work village'. As early as 1950, the Ministry opened its first work village (Kfar Sha'ul) in an abandoned village on the outskirts of Jerusalem. The second (Mazra) was established in 1952 in the North, near Akko.

The work village was designed in the belief that even the most chronic psychotic is capable of some personal and social regeneration, if the path to him can be found. It employs every method of social re-training. It attempts to stimulate the personal initiative of the patient, and promote his capacity for social contact and cooperation by enriching his daily experience under therapeutic direction. It relies heavily on the processes at work in the small guided group to deepen the emotional participation of the individual patient. Group situations of this sort are promoted at all times: in the patient's accommodation, while he is at his vocational training, and in all his daily occupations and his leisure.

Patients are housed in small individual units, designed for about 15 persons. At work, small groups are trained in various occupations, such as carpentry, metal-work, dressmaking, gardening and weaving. As their skill increases, patients join small work groups, guided by skilled craftsmen, occupational therapists and nursing personnel.

Community influences in the village are employed to stimulate the patient's will to social activity and leadership, which is expressed in larger groups in the community, at general meetings and through participation in village management.

In leisure hours, hobbies of all kinds and physical and cultural recreation are encouraged. Folk-dancing and choir work, so typical of Israel, are particularly popular. Drama, literary and recreational groups play a distinctive part in the village life, because of the opportunity they give patients to share in them,

and the rich material they offer to therapists. The many festivals of an Israel community, the eve of the Sabbath, the week of Passover and so on, are celebrated in the village and have much significance for the patient. These activities are often initiated and organized by the patients themselves. Staff, and visitors from other institutions particularly, also join in.

The patient as an individual in the work village is not lost sight of. He is encouraged to express his personal needs and preferences, as well as complaints and feelings about staff and fellow-patients, in an atmosphere of tolerance and under their guidance. The basic unit of care is the small group, which lives together and shares its workaday life of social activity and productive work.

The community atmosphere of the work village became the model for institutional care in all in-patient facilities, especially those of the Ministry.

Today there are four work villages, one for each region.

Rehabilitation Centres

The quick growth of the country and the various stresses on the family, as a result of immigration and cultural change, made great demands on psychiatry. A disturbed person within a family already subject to stress proved too great a burden in many cases. Two institutions were established for the care of the neurotic and the borderline psychotic: 'Shalvata' of the Histadrut Sick Fund, and 'Nes Ziona' of the Ministry, with about 100 patients in each of them.

These 'rehabilitation centres' are virtually communities of younger adult neurotics and incipient psychotics, who left their normal backgrounds in kibbutzim, the Army or private homes to remain for several months in these open but sheltered communities. Sometimes they were transferred there after treatment in psychiatric hospitals. In Shalvata, the accent was placed on intensive analytic psychotherapy; in Nes Ziona, on group and community living, with staff and therapists employing techniques of occupational re-education and intensive social work for rehabilitation. Again, the employment of group and cooperative methods in patient care was a reflection of the social philosophy of Israel.

With the social and economic consolidation of the State, the demand for this kind of institution has diminished. Sufficient housing, employment, educational facilities and other services of suitable type and adequate standard provide a social matrix from which disturbed individuals may turn more and more to day care or ambulant assistance, without admission to a special community. But these open settings still serve patients in the early stages of disturbance where the family is unable to deal with the situation. Both institutions have developed techniques of social support and therapy which will undoub-

tedly leave their mark on the psychiatry of Israel. They are today developing enlarged out-patient and day-care. Nes Ziona has become a centre of care for children, youth and young adults.

Custodial Care

These institutions developed from small private institutions, sub-standard homes of, at times, deplorably low quality. Several were shut down and many raised to at least a tolerable standard by the vigorous action of a special team and the regional psychiatrists.

The team, with a small number of social workers, screened every chronic patient in the institutions. Where necessary, patients were brought to a psychiatric re-assessment centre at Sha'ar Menashe. There, they were assessed further, and then sent for re-treatment to hospitals or for long-term rehabilitation in work villages. As a result of this activity, the private institutions were converted into custodial care homes with a fairly homogeneous population. The homes were graded for care of defectives, for nursing care of the bed-ridden terminal patient or for psychotics of poor prognosis. Experiments were begun for the 'adoption' of these graded homes by the Government hospitals, so as to improve supervision and integrate their custodial facilities with those of Government hospitals.

Geriatric Psychiatric Services

Immigration to the National Home before 1948 was drawn in the main from younger age groups. Consequently, in 1948, the population was relatively young (3.8% over the age of 65 years). Subsequent waves of immigration caused a rapid demographic shift in the direction of the older age groups; and, with rising health and social standards, the population is assuming an age-distribution associated with Western countries (5.8% over 65 years of age in 1964). Understandably, in the pre-State period, services for the aged were relatively under-developed, and geriatric experience was lacking. Therefore, after 1948, there was little to build on to meet the needs of the larger group of aged citizens, whose problems were more in evidence.

Older people from European countries came to Israel, often alone and deprived of their families, and found great difficulty in re-establishing themselves. Older people from Eastern communities suffered loss of status, because of their inability to earn or to learn new ways of life. Their situation and role in their large families altered. The social change for the aged immigrants from Islamic countries made for great personal stress. The inability of these old people to adjust themselves to different and changing conditions was emphasized and made more acute by the facility for change that their own children exhibited.

Initially, villages for the immigrant aged were established by the services of Malben, which provided the requirements for daily living, occupation, entertainment and social interests. Later, Malben began to set up social and health programmes for the aged in urban quarters.

Near one of its villages for the aged, Sha'ar Menashe, Malben put up a general hospital for the aged, including a ward for geriatric cases that revealed emotional or other psychiatric disturbances. In association with the Ministry, this ward became the centre for a countrywide geriatric-psychiatric programme.

The Sha'ar Menashe programme, in about 50% of cases, restores aged patients taken from psychiatric hospitals and family homes to a non-psychiatric setting. After discharge from Sha'ar Menashe, follow-up care by social workers has been successful in maintaining the therapeutic gains by adjusting the social milieu to the aged patient's emotional and physical needs and limitations. Patients are selected by regional mental health centres and followed-up after discharge from the centres. Near Sha'ar Menashe, a private hospital has been converted into a terminal custodial and nursing unit. Half-way houses have been established in villages for the aged and day centres at the wards.

A second geriatric unit has been opened in the Tel Aviv region, and one is ready in Jerusalem.

Child Psychiatry

There were no psychiatric facilities of the in-patient type for children until the mid-fifties, when two psychiatric wards for children (a total of 70 beds) were established. They were attached to existing psychiatric hospitals for adults. These settings provided excellent and sensitive care, therapy and educational facilities for children before the age of puberty, who were psychotic or had marked behaviour problems.

COMMUNITY MENTAL HEALTH SERVICES

In the early thirties, the Histadrut Sick Fund established neuro-psychiatric clinics; other public agencies did the same in general hospitals. The clinics offered diagnostic services and treatment which was essentially symptom-orientated. After the establishment of the State, these out-patient clinics added social workers and psychotherapists to their staffs. In 1957, the neuro-psychiatric clinic of the Sick Fund was reorganized in two sections, of which one became a mental health clinic. This provides diagnostic, counselling and therapeutic services. A rising proportion of the work of the clinic is its counselling and training of family physicians and teachers.

In 1958, tentative programmes were drawn up to reorganize the content of the services and plan a physical reconstruction of facilities. It was at this point that Malben offered its financial and professional support to carry out the new design.

Among the underlying principles and practices of the new programmes the following may be pointed out:

The community approach of the mental hospitals should be encouraged and more facilities established in them. Out-patient services were introduced at several community psychiatric hospitals, directed not only to continuing care of the discharged patient but also to early care of ambulant patients and home visits. The swift rise in the number of outpatients began at once to better opportunities for continuity of care and for overcoming the defects and burdens resulting from loss of contact with patients. Out-patient teams, too, were able to mobilize community and service resources for patient-care and rehabilitation to a greater degree.

It was laid down that the community psychiatric hospital should be no larger than 250 beds, with a variety of community facilities that would, *inter alia*, care for about 50 day-patients (this for a population of 250,000). Day-care for adults has been developed by the Ministry at two community hospitals.

With the improvement of community attitudes to the psychiatric hospital, the psychiatric ward in the general hospital is ceasing to be predominant in early hospitalization. It was suggested that the ward should see itself as an extra-mural community service, rather than as chiefly in-patient. Work at the general hospital has been fostered in two directions: out-patient and, increasingly, day-care, consultation and liaison in the hospital, especially the medical and paediatric wards. It is planned that, with the decentralization of the geriatric services, the general hospital should assume functions in early geriatric ambulant and in-patient care.

The work village, which has performed such an important task in cushioning the first shocks of hospitalization for chronic psychotics among immigrants and in charting the paths to rehabilitation, has become freer to accept other responsibilities. A cardinal one is re-treatment of psychotic cases which break down in the community after discharge. The work village has thus developed a relation to a progressively larger group of patients in the community, who see it as the focus for their re-treatment and rehabilitation.

As part of the new design, two hostels have been established, in Tel Aviv-Yafo and in Jerusalem; they are half-way houses for patients not requiring admission to a psychiatric hospital or in process of discharge to the community.

There has been a notable development of services for children during the last five years. 40 beds were set up in the Nes Ziona centre for youth, over and

above the existing children's beds. In 1965, a day hospital for 20 children, with a small 24-hour observation unit, was opened in Jerusalem. An experimental nursery school for disturbed younger children will soon be opened in cooperation with the Ministry of Education and Culture and the local authority in Netanya.

The number of beds in all mental hospitals today exceeds 6,200, a ratio of about 2.4 per 1,000 of population: 3,000 beds in Government hospitals, 400 of the Histadrut Sick Fund, 2,200 in private hospitals, and the remainder in public-sponsored institutions.

Table 1 reflects the growing share of the Government mental hospitals:

TABLE 1
BEDS FOR MENTAL PATIENTS IN ALL MENTAL HOSPITALS, THEREOF IN GOVERNMENT HOSPITALS,
RATE OF BEDS PER 1,000 POPULATION, 1948-1964

Year	Number of Beds in all Hospitals	Number of Beds in Government Hospitals	Rate of Beds in all Hospitals per 1,000 Pop.
1948	1,197	208	1.38
1949	1,546	510	1.32
1950	1,917	803	1.39
1951	2,264	1,176	1.37
1952	2,619	1,500	1.52
1953	2,860	1,660	1.62
1954	3,180	1,745	1.88
1956	3,690	2,000	1.98
1960	4,924	2,708	2.29
1961	5,150	2,881	2.35
1962	5,490	2,953	2.35
1963	5,476	2,975	2.25
1964	5,875	3,116	2.32

The mental health centres have developed both in number and in intensity of penetration into the communities and their problems. Of special significance are the smaller ones in the development towns, often based largely on a visiting team which cooperates intensively with the local education, welfare and public health agencies. Much of the groundwork for this approach to the services and the community has been laid by community organizer activity in the locality.

An essential part of the new plan of development is the training of psychiatric and allied personnel. A number of public health nurses have undergone specialization in mental health and psychiatry, and now work in mental health centres and in out-patient departments. Courses in social psychiatry have been provided for graduate community organizers, public health nurses, clinical psychologists and psychiatrists in training. Undergraduate courses in social psychiatry for medical students have just begun. The rapid growth of child psychiatry has vigorously accented the impact of psychiatry on the community and the orientation of paediatricians and other child-care workers, for example those in kibbutzim and special schools, probation officers and those looking after retarded children.

TABLE 2
PROFESSIONAL WORKERS IN PSYCHIATRIC AND MENTAL HEALTH FIELDS,
EMPLOYED IN ALL INSTITUTIONS AND IN THOSE OF THE MINISTRY OF HEALTH, 1965

Profession	Employed in	
	All Institutions	Institutions of the Ministry of Health
Psychiatrists, including residents in psychiatric hospitals	170	100
Clinical psychologists	60	38
Psychiatric social workers	100	80
Psychiatric nurses, registered	87	72
Psychiatric nurses, practical	700	600
Occupational therapists, registered	151	28
Occupational therapists, practical		79

Adult Mental Health Centres

From 1950 to 1952, the Division of Mental Health in the Ministry established adult mental health centres in the three major cities. They were based on the inter-disciplinary team, capable of providing a broad diagnosis of the situation of the case, therapy for the individual and case-work and assistance for the family. They also provided consultation to all other services for the adult, such as probation and court, social welfare, rehabilitation, immigrants' absorption and health. The centres were thus favourably placed to introduce mental health principles into the work of health, social and other agencies, by educating workers in conferences and seminars which discussed actual cases. The therapeutic case-load was restricted, to give more time for training and counselling of this kind. Recently, other such centres were opened in smaller towns. Special attention is paid to long-term follow-up work with patients transferred to the centres from psychiatric hospitals and their out-patient departments.

Child Guidance Centres

Set up in the three major cities by the Ministry of Social Welfare, these were taken over by the Ministry of Health in 1958; they function like the adult centres and in line with traditional methods of child guidance.

A new type of mental health centre of the Ministry combines adult mental health and child guidance in one community-and-family mental health centre. This type, established in conjunction with a municipality, provides, as well, wherever possible on a family basis, supervision and consultation to the school and youth psychological services of the city. A community organizer for mental health links it with neighbourhood public health activity and community organization. In this way, it contributes to a mitigation of unfavourable social forces in urban quarters, especially where immigrants in the throes of adjustment are living.

MENTAL HEALTH LEGISLATION

Rules for hospitalization of mental patients came into almost spontaneous being, replacing Mandatory provisions out of accord with developing psychiatric services. Psychotics could now get hospital care with a minimum of legal interference and yet with reasonable safeguards of their own and their families' interests. The rules were duly embodied in the Mental Treatment Law, 1955, which expresses the spirit of psychiatric rather than custodial care.

In each of the three present regions, Ministry services are represented by a regional psychiatrist. He is empowered by law to direct hospitalization, and to enter mental hospitals and homes and prescribe treatment for psychiatric cases. He investigates complaints and deals with questions of guardianship. Administratively, he coordinates Government hospitalization and is generally responsible for supervising all mental hospitals in his region. In each region, there is a regional psychiatric board of three members, including a lawyer: its functions are to parole or discharge patients hospitalized by court order and hear applications by patients and their kin in respect of discharge; in law, it has the same powers as the regional psychiatrist.

The legal and administrative psychiatric structure is, indeed, a further expression of the definite tendency to decentralize decision in a controlled and coordinated fashion. Decentralization is all the more feasible because of the range of in-patient and community services developed for each region.

PROFESSIONAL PERSONNEL

Israel has had a prolonged period of shortages in professional psychiatric staff of all types. This was the result of an unusual rate of expansion of services,

and the high standards and expectations generally prevailing rendered it more acute.

In the early fifties, continuous in-service training of all categories of workers, qualified or not, became the order of the day, but, in most spheres, formal training was not neglected.

The first steps to train 'practical nurses' were taken when the hospitals were opened. Selected candidates, with a minimum standard of schooling, were put through theoretical and practical courses of 18 months' duration, at schools attached to three major psychiatric hospitals; most nurses and attendants presently at work have attended them.

A small group of registered nurses took over the nursing direction of the hospitals, as they were opened. A 12-months' intensive seminar in patient-care and human relations in nursing, held in 1954 with the help of a US Technical Assistance consultant, confirmed the status of the fully qualified nurse in psychiatry. Courses of the same length for registered nurses specializing in psychiatry are now held each year.

The qualified occupational therapist was by tradition a member of the psychiatric team. Students of the occupational therapy school were assigned to field work in psychiatry during their 3-years' course, and many joined mental hospitals. So have a number of skilled craftsmen, who provide several types of vocational training and play an important part in the therapeutic atmosphere of the hospitals. Ministry of Labour vocational courses are held regularly for patients.

Psychiatric social workers have been in the van of development in mental health centres and hospitals, doing much to enhance the hospital-community relationship. Originally, most of those serving in mental hospitals had graduated from the 2-years' courses of the Ministry of Social Welfare. Academically-trained personnel of that sort came at first from schools in the United States and Great Britain, followed by graduates of the Hebrew University School of Social Work, who in many instances did much of their supervised field-work training in mental health settings in Israel.

Clinical psychologists were, from the beginning, also a part of the psychiatric team. They did diagnosis and therapy and helped in training personnel. Only fully qualified clinical psychologists of M.A. and Ph.D. standard were employed. Fellowships for post-graduate in-service training, awarded by the Trusteeship Fund of the Ministry and Malben, have now added considerably to the number of staff available. The fellowships have gone in the main to immigrant psychologists who had not been trained in Western methods of diagnosis and therapy.

Departments of Psychology were lately instituted at the Hebrew University, the University of Tel Aviv and the Bar Ilan University.

As services were expanding, senior psychiatrists long resident in Israel, at times trained by the Psychoanalytic Institute operating locally, came forward to take responsible posts in public psychiatry. But, until recently, the dearth of psychiatrists was very serious. The gravest problem had been the profession's inability to attract young physicians to psychiatry. A system of fellowships for the training of psychiatrists was started some years ago, providing a 2-years' in-service rotation period in hospitals and mental health centres. Additional service for two and a half years in an accredited hospital is obligatory for recognition as a specialist. The system has appealed to many young physicians, who have proved a most important reinforcement for the psychiatric services.

EPIDEMIOLOGY OF MENTAL DISTURBANCES

On 1 July 1964, a census was taken of all patients in mental hospitals. It was the first step in a comprehensive and continuing epidemiological study of mental ill health and mental care. The project is being carried out with the support and advice of the Mental Health Section of the World Health Organization.

The count of the 6,000 patients will provide information about them which may be summarized in four categories: identity, socio-cultural background, personal factors including psychiatric state, and the length and nature of treatment in a psychiatric hospital. The definition of socio-cultural variables has been fully coordinated with those used in the recent general population census. This will allow of calculating hospitalization rates for the various groups by ethnic origin, educational status or socio-economic level. Especial emphasis is placed on the factors of immigration and country of origin. Among the personal factors stressed, besides age, sex, marital state, and the like, is experience in concentration camps and other forms of detention. For the purposes of diagnosis, a new classification of mental disorders has been introduced to be employed in all psychiatric work: the nomenclature, replacing the one in vogue since 1950, is based to a considerable degree on that recommended by the American Psychiatric Association, adjusted to the needs of Israel. A feature of it is alignment to the demands of work in the community, and a list of symptoms added to the usual categories of mental illness permits of greater diagnostic manoeuvrability. The classification will allow of international comparison.

The data are now being marshalled in a series of trial statistical tables which will express the psychiatric state as a function of the personal and socio-cultural factors and mirror as well the nature and quality of the treatment operations of the mental hospitals. The initial tables will only reflect, in these

respects, the composition of patient population in hospital on census day and make no reference to patients not in hospital. Immediately after census day, a reorganized system of country-wide reporting of admissions to and discharges from mental hospitals was instituted. These reports to the Mental Health Services replaced those rendered since 1950, and are based on the census report employed for each patient on 1 July, using the new nomenclature of psychiatric disorders. The reporting to the Ministry of patient admission and discharge is required by the Law of 1955. The new style of reporting will allow of periodical analysis of patient population according to the aforementioned factors and enlarge the epidemiological picture obtained by the one-time census. Assembly of the cumulative data will, for example, enable the statistician to furnish information on categories of patients, whether hospitalized or not at the time, and the outcome of their treatment, or to analyse the employment of the hospital as a resource for different types of patients. The accumulation of information will be of importance to the clinician seeking indications of etiology and of the factors influencing the results of treatment and rehabilitation. Its especial significance should be in the sphere of exploration of the socio-cultural factor in mental disturbance.

The census and the follow-up studies which are now in train will make for a permanent and continuing study of the epidemiological situation in mental health of Israel as reflected by hospital psychiatry, and of the functional employment of the hospitals.

For the future, the intention is that hospital statistical reporting shall be supplemented by reporting from the community psychiatric and mental health installations. Community reporting has a mounting significance, in view of the swift expansion of community services. In any case, the epidemiological value of hospital statistics alone as a true reflection of the incidence and even of the prevalence of mental disturbance may be justifiably questioned. It is hoped that reporting, on an individual patient basis, of an adequate sample from out-patient clinics, mental health centres and psychological services will, with hospital statistics, ensure a more precise image of the state of mental health and care.

A third phase in epidemiological study demands recurring field investigation through a systematic collection of data of psychiatric value from allied services such as health, welfare and probation, and house-to-house investigation in selected population samples. Tentative efforts have already been made in these directions.

The nation-wide epidemiological programme has had the fullest cooperation of the psychiatric and allied disciplines and may culminate in a diagnostic technique of much clinical and social importance for Israel, and a source of information and comparison with and for other countries.

Although the census of 1964 does not give meaningful answers to questions of incidence or prevalence of mental disorders in Israel, it does offer a general and preliminary indication of the nature of the problems to be expected in the variety of ethnic, age and other groups that make up the population (Table 3).

TABLE 3

HOSPITALIED CASES BY SELECTED DIAGNOSTIC CATEGORIES
AND COUNTRY OF BIRTH, (CENSUS 1964)
JEWISH POPULATION, RATES PER 1,000

Diagnostic category Country of birth	Schizo- phrenia	Affective Reactions	Personality Disorders	Total
Israel	7.01	0.34	0.76	10.98
Yemen and Aden	28.10	2.33	0.58	41.49
Iraq	23.74	2.50	0.64	38.04
Morocco, Algeria, Tunisia	18.12	1.90	2.13	29.96
Egypt, Libya	23.54	0.81	0.81	33.42
Turkey, Iran	19.83	1.95	1.08	33.71
USSR, Poland	24.86	3.53	0.68	35.75
Germany, Austria	35.24	3.99	1.16	47.55
CSSR, Hungary	27.84	4.32	2.40	41.77
Bulgaria, Greece	22.16	3.39	1.43	35.38
Rumania	25.73	4.67	1.38	43.02
Other countries	32.14	1.43	2.26	45.0
Total	16.70	1.78	1.00	25.54

Source: Halevi, H.S., Ph.D. Preliminary Report on the Census of Mental In-Patients in Israel, July 1st., 1964. Ministry of Health, Jerusalem, 1964.

The census shows the relatively high number of chronic schizophrenics from Europe, many being survivors of concentration camps. It also demonstrates the higher rates of depression in European-born, compared with African-Asian-born.

Table 4, prepared from an analysis of new cases admitted in 1958 to mental hospitals, is presented for purposes of comparison and as a correct reflection of the epidemiology of some mental disorders at the time.

TABLE 4

ADMISSIONS TO MENTAL HOSPITALS IN 1958 BY SELECTED DIAGNOSTIC CATEGORIES AND COUNTRY OF BIRTH, JEWISH POPULATION, RATES PER 1,000

Country of Birth Diagnostic Category	Iran	North Africa	Central Europe	Eastern Europe	Israel
Schizophrenia	7.3	7.2	4.4	3.4	8.1
Affective reaction, including involuntional depression	2.4	2.6	5.5	5.1	2.3
Paranoia	2.0	0.9	1.1	1.1	0.3
Hysteria	0.8	1.6	0.4	0.1	0.2
Obsessional neurosis	0.4	0.7	0.4	0.3	0.9
Personality disorder, including psychopathy	3.6	5.1	1.3	1.1	3.0
Total first admissions	31.8	25.5	14.2	16.6	22.3

Source: Admissions to Mental Hospitals, 1958, Department of Statistics, Ministry of Health, Jerusalem. (Halevi, H.S. Ph.D.)

The first admission rates illustrate the higher incidence for schizophrenia and the lower incidence for depression of non-Europeans compared to European-born. Hysteria predominates in the African-Asian-born. The high rates of personality disorder may be related to the local adjustment problems of the latter. Israeli-born show a distribution for the major diagnostic categories very much like those of the African-Asian-born, although 60% are of European parentage.

A growing corpus of information of an epidemiological nature has become available as a result of field and clinical studies in mental ill-health. It includes studies in personality deviation of kibbutz-raised children, concentration-camp victims and problems besetting African-Asian-born children in their state of change.

Research of an operational character in the matter of the destiny and rehabilitation of discharged patients is being conducted by the Ministry's Division of Mental Health.

There has been a marked shift from clinical investigation in hospitals to research in the community, concerned with both individual personality and deviation and the social forces which produce them. In the disciplines allied to psychiatry, the relation of delinquency to the social milieu has been investigated. Plans are being prepared in the Division for a study of cultural change and changed child-rearing practice and their eventual effect on personality.

Sociological research has been extensive and has made some contribution (not yet exploited by social psychiatry) to an understanding, in particular, of power structure and leadership roles in family and community, of social processes in the aging and of attitudes to institutions.

MENTAL HEALTH NURSING SERVICE

In 1948, there was only a small number of qualified psychiatric nurses in the country.

Several post-basic courses were therefore started during the first years of statehood to teach mental health to professional nurses. Additionally, schools of practical psychiatric nursing were established. In 1954, a US psychiatric nurse specialist was assigned to Israel to teach psychiatric nursing care to graduate nurses and other nursing staff. Graduate nurses joined the Psychiatric and Mental Health Services, and by now many of them have had post-basic training in mental health and psychiatric nursing. Most of them occupy administrative, supervising and teaching positions in the psychiatric hospitals. Routine nursing and direct patient care are left almost entirely to the practical psychiatric nurses. The shortage of practical nurses necessitates the employment of many untrained aides. Continuous in-service training attempts to overcome this educational gap.

The role and function of the mental health and psychiatric nurse have yet to be clearly defined.

The psychiatric nurse assists in all kinds of physical and psychiatric treatments, one of the most important being to create a therapeutic atmosphere. Her psychiatric work may be with individuals or with groups, in line with the patient's needs and the physician's directions.

In almost every section of the psychiatric hospitals and in the psychiatric wards of general hospitals, a graduate nurse is in charge. She is responsible to the physician for medical orders, and to the director of nursing service for the patients' nursing care. She coordinates the activities of the members of the treatment team, and assigns tasks to the nursing personnel according to their individual ability and the patients' needs.

The director of psychiatric nursing service in an institution or agency plans and supervises nursing care for all patients in her charge, and interprets to the nursing staff the policies and practices of the institution. She recruits and assigns personnel to nursing tasks, and cooperates with other departments. Her responsibility is to the Medical Director of the institution or agency and to the Nursing Service Supervisor of the Ministry of Health.

The Psychiatric Nursing Service Supervisor of the Ministry maintains direct supervision over all nursing work, planning, and policy-making that have

to do with psychiatric nursing services. She cooperates with the medical and administrative directors of the hospitals, or agencies, to coordinate nursing and other services in the Divisions of Mental Health and Nursing, and other services and departments of the Ministry of Health. She plans and organizes conferences and in-service training projects for all levels of psychiatric nursing personnel. She cooperates with the Nursing Service Supervisors in the Ministry of Health in integrating basic psychiatric and mental nursing principles in the other branches of nursing. Administratively, the Psychiatric Nursing Service Supervisor is responsible to the Head of the Division of Mental Health, and professionally, to the Chief Nursing Supervisor of the Division of Nursing in the Ministry.

As from 1954, regular post-basic courses for graduate nurses were held in mental health. In 1963, the syllabus of the course was extended from 239 hours in six months to 500 hours in twelve months. Theoretical subjects, coordinated with supervised practical experience, are taught in the first six months of the present course. The second semester is an internship arranged to meet the nurse's individual educational needs and depends on her former experience and plans for the future. Throughout the programme, there are 2-4 study days a month.

The programme is based on preparing nurses for work in the mental health field by building on the student's knowledge and experience. Usually, the nurse enters with a definite goal in mind, and the internship, especially, is geared to give her the needed supervised experience to meet this goal. Preventive treatment and rehabilitation are stressed as well as the need of safeguarding family and community ties whenever possible. Additionally, traditional treatment of the mentally ill is taught, and the nurse is helped to deepen her understanding and knowledge of mental illness in the individual, the family, and the community. Study of interpersonal and group relationships is included in the programme. Theoretical study includes: health services in the community and their functions, psychology, psychiatry, sociology, anthropology, psychiatric and mental health nursing, group dynamics, principles of teaching and administration. Group discussions of practical problems relating to mental health and problems of interaction with patient and co-workers, and orientation to allied disciplines and services in the area, complement theoretical study.

The practical work offers special learning experiences in open, acute, chronic, geriatric, and children's wards of psychiatric hospitals. This is followed by supervised experience in such community services as psychiatric out-patient departments, mental hygiene clinics, hostels, clubs for the aged, and similar social agencies for the mentally ill and persons in incipient phases of mental illness. The internship also offers supervised experience in other psychiatric and mental health agencies, if this is required in order to meet the individual

needs of the nurse. The instructor is always a qualified and experienced mental health and psychiatric nurse.

To help fill the need for staff in psychiatric hospitals and agencies, an eighteen-months' course in psychiatric practical nursing is available to persons with eight years of elementary schooling. Priority is given to aides in psychiatric hospitals who wish to advance. The programme, which was begun in 1951, combines theory and practice under the supervision of professional nurses. Successful completion is acknowledged by certification in practical psychiatric nursing.

The programme includes: basic nursing theory and practice, five months supervised clinical experience in a general hospital, basic psychiatric theory and nursing, and supervised psychiatric nursing practice. To meet the needs of some of the students, the course includes special classes in arithmetic, Hebrew, and written English. So far, 700 practical nurses have graduated.

SOCIAL WORK IN MENTAL HEALTH SERVICE

Social work has been linked to the Mental Health Service ever since it has been organized. In all units of the Service — psychiatric hospitals, psychiatric wards in general hospitals, hostels, clinics, mental health centres and child guidance centres — the conception of psychiatric team-work has been accepted; the interdisciplinary team is capable of encompassing many aspects of the individual's life and it is thus able to provide comprehensive service to him as well as to his family. The function of social workers in various units of the Service differ, in line with the unit's overall objectives, policies and methods.

Eighty five social workers, all qualified, are employed in the units of the Service. There are small units with only one worker, others with as many as eight. The aim is to have one senior worker in each unit who participates in policymaking, ensures professional supervision of all social work activities and provides counselling to the other members of the staff. As a rule, where there is a social work service headed by a senior worker responsible for determining assignments rather than individual social workers attached to a particular department or psychiatrist, the programme as a whole is better defined, more efficient and more closely integrated with the functions of the other disciplines.

An important function of the social worker in psychiatric settings is to obtain information for a social case-history. The case-history includes data on the patient's development, his social, economic and cultural background, the quality of his interpersonal relations, significant experiences at different stages of his life, his expectations and disappointments and on his ability to cope with crises. In the mental health centres, this is part of a routine intake process for which social workers are usually responsible. In other units, espec-

ially in hospitals, the psychiatrist takes the case-history from the patient while the social worker obtains relevant data from his family and from other sources. A desirable objectivity regarding the patient's situation and his interpersonal relationships is thus achieved by the team.

The link with the patient's family constitutes a central feature of the entire course of treatment. It should begin at the earliest stage, since it is often necessary to help the family overcome feelings of shame and guilt. In addition, the nature and character of the patient's disturbance requires interpretation to and discussion with the family.

In his contact with families, the worker assesses their social conditions — housing, employment, income, household management, child-care practices and the like — all of which are liable to have an impact on the patient's well-being. The social worker tries to bring about changes, where this is indicated, by providing advice and guidance or by the direct mobilization of community resources. In all cases where the family is capable of assisting the patient in his physical and emotional recovery, the process of treatment is shorter and the patient's return to the community easier. Even families which at first appear to reject the patient and to lack understanding of his problems show far-reaching changes in their behaviour following social work intervention. These changes contribute to the improvement of the patient's condition and to his rehabilitation.

In cases where there is no opportunity to bring about changes in a patient's pathogenic social environment, an attempt is made to find a suitable alternative placement for him. In Israel, a country of immigration, many patients lack family attachments, or else have families which lack economic or emotional stability. To meet this contingency, the development of placement facilities with foster families seems to be the most promising approach.

During hospitalization, the social worker serves as a connecting link between the patient and the community. He shares the patient's concerns about the wellbeing of his family during his absence from home and sees to it that his civic rights are safeguarded. If the patient owns property and is unable to look after it, his financial affairs will be transferred to the care of the Administrator General, in accordance with the Mental Health Act of 1955. The social worker also makes recommendations regarding the timing of the patient's visits at home and, where necessary, prepares the family for the patient's visit.

The social worker's activities are indispensable in planning and carrying out the patient's discharge from hospital. The more prolonged the hospitalization, the more complex becomes the planning task. In many instances, there are good chances for the patient's return to his family and to his previous social activity. In others, where environmental stresses contributed to his

becoming ill, discharge planning should aim at alternative placement. In some instances, the illness may have brought about fundamental changes in the patient's behaviour or his personality and he may be in need of rehabilitative opportunities away from his previous setting. In all patients, return to the community arouses anxiety, especially in those whose dependency needs are great. The social worker assists the discharged patient, advises and supports him, and endeavours, as the need may arise, to enlist and activate community resources on his behalf.

Vocational rehabilitation and placement still calls for much effort. Mental patients meet with prejudices which interfere with their chances to find employment. During recent years, an increased demand for manpower has multiplied and diversified employment opportunities for the mentally disabled. Employment counsellors in the Employment Service assist in directing them to suitable jobs or vocational training, and placement officers in securing actual employment. Often the social worker maintains contact with the employer so as to lessen his apprehensions and to advise him in the event of adjustment difficulties on the part of the new employee.

Rehabilitation does not end with finding a job. The social adaptation of the psychiatric patient following his discharge from hospital is more complicated. Rejection may still be present in the behaviour of his family or community towards him and he may feel inadequate. He may suffer anxiety and anger and retreat from social contact. The social worker tries to help him overcome his social isolation and to find new opportunities for social participation. Hospital admissions and readmissions may often be prevented by appropriate social work service, as part of psychiatric treatment.

Hence the importance of after-care. The tendency is to ensure continuity of treatment, after discharge, by existing local services. Actually, the provision of community care is still hampered by many difficulties. There is a lack of supplementary services and existing services are overburdened by large case-loads and suffer from personnel and budgetary shortages. Nor can the fears of the community towards the mentally disturbed be ignored. In localities where the Mental Health Service has set up its own clinics, improved cooperation on the part of community services has been achieved.

Discussion of community treatment remains incomplete without reference to the possibilities offered by volunteer mental health work. Social workers in the Mental Health Service have recently begun to develop this field of activity.

In mental health and child guidance centres, social workers spend much of their time in community activities designed to meet preventive and promotive aims. In some units these tasks are carried out by social workers specializing in community organization.

In general, the Mental Health Centres for adults and children deal with fewer psychotic patients and a larger number of patients suffering from emotional disturbances of various kinds and from adjustment or family problems. In these centres, the social worker is often the first staff member to receive the patient and in many instances he gives direct treatment, especially in cases where the difficulties result from environmental and social pressures rather than from intra-psychic conflicts. In child guidance centres, the treatment contact of the social worker is mainly with the parents.

In carrying out their functions, social workers use the case-work method, a method of psycho-social treatment which recognizes the interaction of psychological and social factors in dysfunction. The relationship between the patient and the social worker serves as a primary tool of treatment. The worker's acceptance of the individual patient, his non-judgemental and supportive attitude provide the patient with an opportunity to make better use of his own psychological resources and to play an active part in the resolution of his adjustment difficulties. This, often, is a prolonged process.

In addition, utilization of the social group-work method is expanding in the Mental Health Service. Specialists in social group-work have recently been added to its staff.

Students of the Paul Baerwald School of Social Work of the Hebrew University are placed for practical field experience in social work units of the Service. The number of students ranges from twenty to twenty-five a year; some of the graduates seek employment in the units in which they had their field work practice. This brings about steady growth in the proportion of academically qualified social workers employed in the Mental Health Service.

The needs for service faced by social work in the Mental Health Service always extend beyond the limits of its resources. Each unit is forced, therefore, to determine priorities. This can be done with greater efficacy if the vast experience that has accumulated in the field of social work in psychiatry and mental health in Israel can be used as a basis for research.

SERVICES FOR SELECTED GROUPS

HEALTH SERVICES FOR THE ARAB POPULATION

When the Ministry of Health was established in 1948, it was thought necessary to set up a special division to serve the Arab community. However, with conditions becoming gradually stabilized and general health services becoming consolidated, and the Arab population progressively integrating itself into the structure of the State, the division proved less and less necessary, and it was abolished in 1952. A minority, however, still needed certain services, and, therefore, the Ministry set up clinics and mother-and-child health centres in different areas.

The long-range policy of the Ministry is to integrate the services for the non-Jewish population into the country-wide programmes. Progress in that direction has been made in a number of places; in others, there are serious impediments such as:

- (a) lack of access roads in the hilly regions;
- (b) absence — because of clan rivalries — of a local authority which could participate in the provision of services;
- (c) shortage of trained personnel;
- (d) lack of running water, electricity and telephones in isolated and remote villages.

All the same, difficulties are being gradually overcome.

Many Arabs and Druzes have joined the Kupat Holim of the Histadrut which has, accordingly, set up clinics in many villages, offering curative services to its members; one side-effect of this has been that the other villagers ask to be treated likewise. Since no local authority exists with whom to negotiate the building of premises and a share in the cost of such services, there are difficulties in meeting such demands. In the Akko district, for example, only two thirds of the minority villages had been incorporated by the end of 1964.

TABLE 1
CHRONOLOGICAL GROWTH OF GOVERNMENT
HEALTH SERVICES FOR THE ARAB POPULATION

Year	Number of Clinics Added	Number of Mother-and-Child Health Centres Added
1954	—	1
1955	6	6
1956	1	1
1957	7	9
1958	3	6
1959	5	7
1960	2	10
1961	1	1
1962	—	2
1963	—	1
1964	4	6
1965	—	3
Total	29*	53

* Two clinics in the Akko district, in the villages Peqini and Mi'laya, were closed.

TABLE 2
GOVERNMENT HEALTH SERVICES IN ARAB COMMUNITIES, BY DISTRICTS,
1964

District	Number	
	Clinics	Mother-and-Child Health Centres
Be'er Sheva	5	1
Jerusalem	—	1
Ramla	—	1
Petah Tiqwa	—	2
Netanya	3	3
Haifa	2	2
Hadera	3	6
Yizre'el	—	9
Kinneret	—	3
Zefat	—	1
Akko	14	24
Total	27	53



Baqa-al Gharabiye Health Centre

First Post-natal visit at the Health Centre



מדינת ישראל
משרד הבריאות
חופאה נפרית
دولة اسرائيل
وزارة الصحة
الجمعية العربية





Bedouin Medical Assistant at Be'er Sheva Government Clinic



Trachoma Control

Trachoma Control





Municipal Health Services, Tel Aviv-Yafo





Tel Aviv-Yafo Municipality Health Installations



None of the Arab graduates of the Hebrew University Hadassah Medical School has so far taken up practice in an Arab village. The reluctance to serve in outlying districts is found among young Jewish doctors as well, and is due, in the main, to two causes: rural health services, especially in outlying villages, do not have the laboratory and X-ray facilities or specialist services that the urban clinics command; the young doctor, unable to consult more experienced colleagues or to benefit from laboratory facilities, feels himself stagnating. Secondly, and no less important, doctors have to be transported in unsuitable vehicles over rough terrain without paved roads to some primitive spot and are bound to deplore such conditions of work.

The same is true for the nurses. The number of experienced graduate nurses is relatively small, especially in the Arab community, for few Arab girls are willing to enter the profession. Steps are being taken to recruit and train Arab nurses.

The following services are provided:

1. *Integrated services*, preventive and curative, are available in health centres such as those in Baqa-el-Gharbiye and Tira. During the past few years, modern hospitals have sprung up in the vicinity of those centres, offering elaborate services and specialists. Arab patients have got rid of their earlier reluctance to be hospitalized in Jewish hospitals, and an ever-growing number of patients avail themselves of treatment in such institutions. This change in approach has significantly raised the general level of health of the Arab community.

2. *Partial services*: They exist in most Arab villages. In some, curative care is provided at Kupat Holim clinics, while the preventive services, such as prenatal health care and medical supervision of infants and school-children, are maintained by the Ministry.

3. *Sick Funds*: At the end of 1964, the participation of Sick Funds in rendering health services to the Arab population was as follows:

- a) 15,000 Arab families, numbering 80,000-90,000 persons, were insured with the General Sick Fund which maintained 39 clinics, serving 40 villages, and three mother-and-child health centres; 19 doctors and 34 nurses were employed in this service.

- b) The Sick Fund of the National Labour Federation — Kupat Holim Le'umit: 1,000 Arab families, numbering 6,000 persons, were members of the National Sick Fund which operates 10 clinics in 9 villages with three doctors and seven nurses.

- c) The People's Sick Fund — Kupat Holim Amamit: 400 Arab families, numbering 2,400 persons, belonged to the People's Sick Fund which op-

erates five clinics in five villages; 2 doctors and 3 nurses were employed in this service.

4. *Villages without regular medical services:* Mobile units serve remote villages and small hamlets, giving such limited services as inoculation of children. The number of such places keeps dwindling, as roads are being built and telephone service, running water and electricity installed.

5. *Hospitalization:* As mentioned above, Arab patients avail themselves in an ever-growing number of treatment in Jewish hospitals, mainly in those of Be'er Sheva, Nahariya, Hadera and Kfar Saba. In addition, there are seven missionary hospitals (400 beds) in Nazareth, Haifa, Yafo and Jerusalem, which are mainly used by Arabs.

6. *Special activities:* Case-finding activities are conducted among the Bedouin tribes in the Negev to combat tuberculosis, trachoma and ringworm, still prevalent in parts of the Arab community. A mobile unit is meticulously combing the Arab villages, examining the children and their families.

7. *Sanitation:* Environmental sanitation is still unsatisfactory on the whole, as local authorities, responsible for services within their areas of jurisdiction, are still few. Some improvement has been achieved by employing sanitarians where local authorities do function; half their salaries are paid by the Ministry.

TABLE 3

HEALTH PERSONNEL EMPLOYED BY THE MINISTRY OF HEALTH IN THE SERVICES
FOR THE ARAB POPULATION, 1964

District	Physicians	Nurses	Sanitarians	Health Educators	Laboratory Technicians
Akko	5	30	4	1	—
Zefat	—	1	1	—	—
Kinneret	—	3	1	—	—
Afula	—	3	1	—	—
Nazareth	1	11	2	—	—
Haifa	1	4	1	1	—
Hadera	5	22	1	—	1
Netanya	5	18	1	1	—
Petah Tiqwa	—	2	1	—	—
Jerusalem	—	1	—	—	—
Be'er Sheva	2	7	—	—	1
Total	19	102	13	3	2

TABLE 4

HEALTH SERVICES IN ARAB TOWNS AND VILLAGES, BY OPERATING AGENCY, 1964

Operating Agency	Clinics	Mother-and-Child Health Centres	Physicians	Nurses	Sanitarians	Health Educators
Ministry of Health	27	53	19	210	12	3
Kupat Holim of the Histadrut	39	3	19	34	—	
Kupat Holim Leumit	8	—	2	7	—	
Kupat Holim Amamit	5		2	4	—	

The past few years have seen a change in reaction and motivation on the part of the Arab population, who show themselves increasingly inclined to use the health services provided, even to the extent of asking for them in areas where they have not yet been introduced. More and more Arab women have their children in hospitals, and the baby-care provided by the mother-and-child health centres is highly valued.

In 1964, 19 doctors, 102 nurses and other health workers were employed by the Ministry exclusively to serve the Arabs and Druzes of Israel. There were more than 50 mother-and-child stations operating in 1964; not one had operated before the establishment of the State.

Apart from the health teams working in the villages, serious cases are of course treated in the main hospitals.

An Arab officer is attached to the Regional Services Administration of the Ministry; his duty is to act as a liaison between the Head Office and the field units in all matters affecting the health of his community.

HEALTH SERVICES FOR IMMIGRANTS

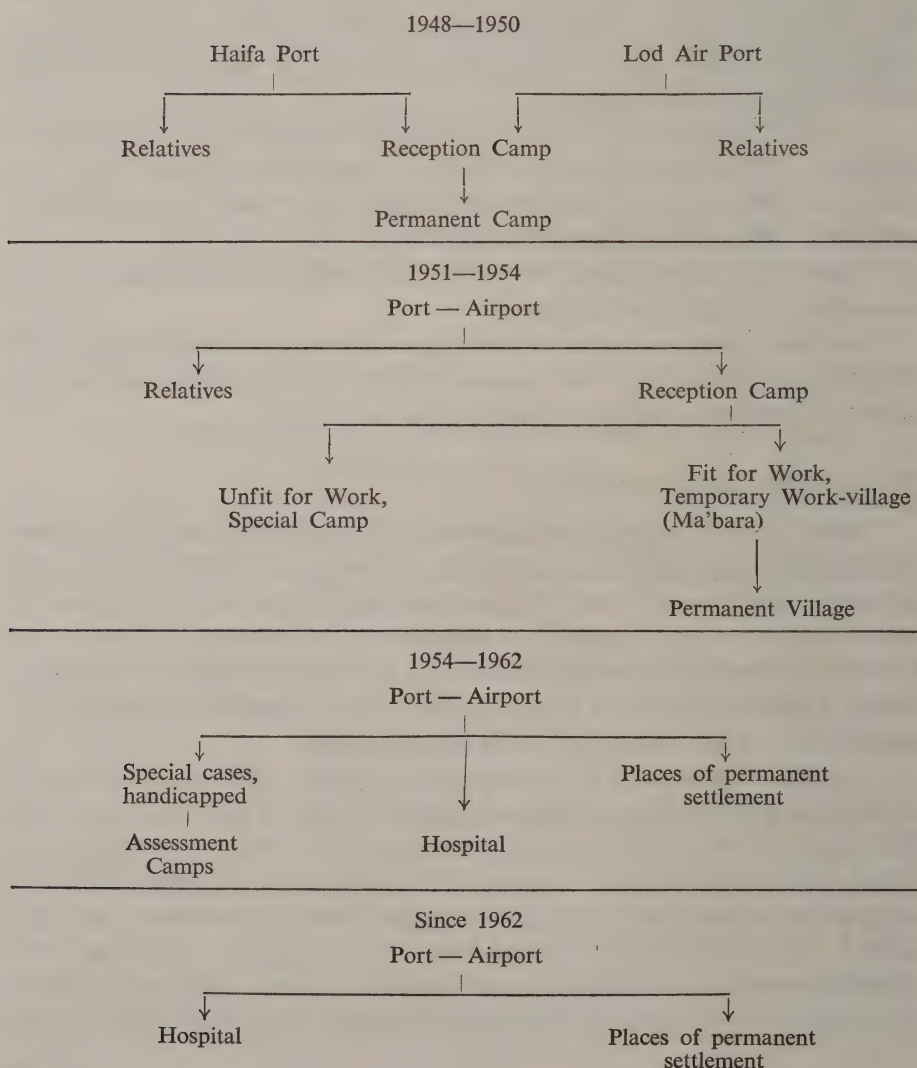
Initially, new immigrants were housed and supported by the Jewish Agency for Palestine in reception camps and hostels. However, in the course of time, this population of new immigrants had grown so rapidly that the financial burden of maintaining so many people not engaged in productive work became unbearable. Because the enforced idleness had a demoralizing effect on the inmates, while, at the same time the country badly needed manpower, particularly in agriculture, a radical change of policy was inevitable.

As a consequence, a new scheme was adopted for the absorption of immigrants which has had widespread repercussions on social and economic life. Only those were maintained at public expense in reception, and in special, camps who obviously had no chances of becoming self-supporting. All fit immigrants who could not provide a place of residence for themselves were sent, after a very brief spell in a reception camp, to a temporary village (*ma'bara*). Here they were housed in tents, huts or barracks provided by the Jewish Agency, but, from the very beginning, they were obliged to earn their own living by

farming land leased to them by the Jewish National Fund, by labour in some nearby town, or on such public works as afforestation and road-building. In August 1954, the policy of absorption was changed again, and radically. The authorities started to direct immigrants directly from the quayside to farm villages, development areas and elsewhere for permanent settlement, without bringing them first to temporary or assessment camps. Progressively the temporary camps were in part liquidated, in part contracted, until, in 1954, the last of them — Sha'ar Ha'aliyah — was closed down.

The old and new methods of absorption are presented in Table 1.

TABLE 1
ABSORPTION OF IMMIGRATION,
1948—1964



Most of the camps were being gradually provided with permanent housing on the same site and turned into permanent new villages, based on a private or cooperative economy, according to the wishes of the inhabitants.

With the establishment of the State, the Government took over from the Jewish Agency and the Hadassah Medical Organization the full responsibility for the health care of all arrivals before their transfer to places of settlement. The presence of an unprecedented number of unscreened immigrants from underdeveloped countries, where the major epidemic diseases were rife, obliged the Ministry of Health to set up a special health service for them, side by side with the regular services for the settled population. Although it operated under relatively primitive conditions, the special service had endeavoured to afford new immigrants high standards of treatment.

Mass diseases prevalent — with varying incidence, of course — in the several groups of immigrants were: tuberculosis, syphilis, trachoma, schistosomiasis, malaria, tropical ulcer, and ringworm of the scalp. The magnitude of the task faced by the health administration is illustrated by Table 2, which gives figures for only one of those diseases, viz. tuberculosis.

TABLE 2

GROUP SPECIFIC PREVALENCE OF ACTIVE TUBERCULOSIS AMONGST IMMIGRANTS
PER 1,000, 1948-1951

Country of Origin	Number of Immigrants	Prevalence Rate per 1,000
Turkey	29,919	9.3
Czechoslovakia	16,300	5.1
Rumania	110,875	4.7
Poland	75,992	4.2
North Africa	85,051	2.3
Iraq	120,600	2.1
Iran	23,412	1.9
Yemen	47,492	0.8
Other Asian countries	29,247	1.4

Immigration up to 1951 was non-selective on health, social or any other grounds. Even though prospective immigrants from certain countries were assembled together in central camps before departure for Israel, there was little or no opportunity for complete medical examination or treatment abroad. All immigrants had, therefore, to be examined thoroughly as soon as they got to a clearing camp.

The system of examination was unique. It was not aimed at a restrictive sifting of prospective immigrants, or merely at protection against the trans-

mission of communicable disease. Rather, it was taken as an opportunity of raising the standards of health of future citizens by detection of unknown and untreated illness.

The examinations were done at the central reception camp of Sha'ar Ha'alayah near Haifa, where, from 1949 to 1952, about 400,000 out of nearly 700,000 newcomers were screened. While at the camp, the support of the immigrants was on the Jewish Agency, but the cost of the examinations and of any necessary emergency treatment was defrayed by the Ministry of Health. Within a few days, each immigrant had undergone a general physical check-up and had been examined by a skin specialist (with particular regard to venereal disease, leprosy and ringworm of the scalp) and by an eye specialist (with particular regard to trachoma and acute conjunctivitis). Mass radiography and inoculations, against typhoid and smallpox were carried out. Every Mantoux-negative reactor under the age of 30 was vaccinated with BCG against tuberculosis. These inoculations, and the results of the medical tests, were recorded in code in the immigration document of each individual, and a copy was filed in the central card-index of the camp.

Since 1952, a renewed attempt has been made to examine and treat prospective immigrants in their countries of origin, but the medical and socio-economic problems involved are so complex that the plan was difficult to operate to full effect.

From countries which are accessible, and where freedom of action is considerable, it is possible to plan in advance and to regulate the immigration of the sick and disabled. But these conditions do not exist everywhere. By reason of the policy introduced in August 1954, whereby immigrants are directed straight from the ship or aircraft to their permanent places of settlement, and because of the closing-down of temporary clearing camps, it was necessary to commence selection and to plan absorption prior to entry into Israel. With that end in view, medical examination in transit camps and ports of emigration in Europe (not in the countries of origin) was instituted. In the larger transit camps, there are teams of physicians and social workers who are charged with the prior arrangement of hospital beds in Israel for patients requiring hospitalization, advance planning of suitable means of absorption and rehabilitation for families whose breadwinners require prolonged hospitalization upon arrival, and with provisions for the due placement of immigrants with restricted working capacity. Psychiatric patients and patients with active Tb, and others requiring immediate hospitalization, are accordingly referred to suitable hospitals from the dock or airport. Immigrants suffering from chronic disease, or any other physically or socially handicapping condition, are no longer assembled in special camps, but are forthwith directed to what it is hoped will be adequate places of absorption, where medical aid is provided.

The idea is to spread them as widely as possible among the settled population. Concentrating the handicapped in special camps, as was the practice during the first stages of immigration, had undesirable consequences. Their protracted stay there made it troublesome to dislodge them and induce them to abandon the little security they had found; and it was hard to wean them from their dependence. The longer the lapse of time, the weaker their will to become self-sufficient and independent.

But even now it is not practicable to carry out the plan in all its details. The conditions and circumstances in which immigration takes place frequently interfere with proper selection and planning overseas. As far as possible, the work is completed at the points of entry in coordination and full cooperation between the Absorption Department of the Jewish Agency and the Ministry.

In Table 3, by way of illustration, are given the results of medical examinations in Morocco in 1955/56.

TABLE 3

RESULTS OF EXAMINATION IN MOROCCO OF 42,866 CANDIDATES FOR IMMIGRATION TO ISRAEL
IN THE YEARS 1955/56

Diagnosis	Approved for Immigration	Immigration Postponed	Rejected	Total
Pulmonary tuberculosis	7	74	160	241
Syphilis	352	14	6	372
Trachoma	13,275	—	—	13,275
Blindness and impaired vision	136	—	156	292
Trichiasis	143	148	—	251
Ringworm of the scalp	1,090	—	—	1,090
Other communicable diseases	274	33	13	320
Mental retardation	23	2	18	43
Mental disease	1	1	18	20
Malnutrition	332	85	—	317
High blood pressure and heart disease	123	10	94	227
Diseases of the central nervous system	—	—	46	46
Other diseases	1,183	148	96	1,427
Invalidity	154	8	144	306
Aged bedridden	—	—	47	47
No signs of illness	24,592	—	—	24,592
Total	41,585	483	798	42,866

It might appear from Table 3 that only 798 out of 42,866, that is 1.9% of candidates for immigration, were rejected on grounds of health. The percentage, however, is much higher if one takes into account that the rejection of one member of a given family in certain cases prevents its immigration as a whole. In actual fact 9.5% of candidates were found ineligible.

Selection is based on the family, that is, the whole family is regarded as a single unit, and is examined from the point of view of its prospects of absorption as such; in the event of illness or incapacity anywhere in the family, its composite state as a unit is weighed against the special requirements of one of its members.

This explains why cases of one and the same disease were sometimes approved for immediate immigration and sometimes rejected altogether, while at other times immigration was deferred pending treatment.

No rejection of candidates, be it noted, is final and absolute. In the second half of 1956, all who had been denied immigration during the period tabulated were allowed in, as well as all other handicapped people held over from previous years.

The prevalence of diseases among Jews who escaped from Egypt in 1957 is different from what it was with Jews from Morocco. In Table 4 an estimate is given of morbidity in the Egyptian groups.

TABLE 4

ESTIMATE* OF PREVALENCE OF SELECTED DISEASES AMONG 13,000 IMMIGRANTS FROM EGYPT IN 1957

Diagnosis	Number of Cases	Rate per 1,000 Immigrants
Active pulmonary tuberculosis	25	1.9
Kahn test positives	60	4.6
Mental diseases	35	2.7
Mental retardation	30	2.3
Blindness	95	7.3
Deaf-mutes	25	1.9
Disturbances of musculo-skeletal system	135	10.4
Bedridden invalids	30	2.3

* The number of Tb cases represents the number admitted to hospitals in Israel. The estimates of other diseases are based on a sampling of 50% examined at the ports of departure in Europe.

Another group of immigrants who arrived without prior examination and selection were those from Poland in 1957. In Table 5, estimates of the prevalence of disease in that group are given; the high percentage of amputees as a result of the second World War and its aftermath is noteworthy.

TABLE 5

ESTIMATE OF PREVALENCE OF SELECTED DISEASES AMONG 30,000 IMMIGRANTS FROM POLAND
IN 1957

Diagnosis	Number of Cases	Rate per 1,000 Immigrants
Active pulmonary tuberculosis	105	3.5
Kahn test positives	110	3.7
Mental diseases	65	2.2
Mental retardation	8	0.3
Blindness	25	0.8
Diabetes	70	2.3
Heart disease	400	13.3
Amputees	120	4.0
Disturbances of the musculo-skeletal system	280	9.3

The demographic structure of this group of immigrants from Poland is of particular interest, reflecting, as it does, the catastrophe which overtook European Jewry: while in other countries of emigration the proportion in the age group 15-19 was about 10%, in Poland it was only 4.3 per cent. This is shown in Table 6, which is based on two populations of immigrants: that of 1955 in which North Africans constituted 87.6% of the total, and that of 1957 in which 56.5% came from Eastern Europe and only 17.4% from North Africa.

TABLE 6

COMPARISON OF AGE-COMPOSITION OF IMMIGRANT GROUPS IN 1955 AND 1957

(according to data of the Absorption Department of the Jewish Agency)

Age Group	Immigrants of 1955		Immigrants of 1957	
	Absolute No.	Percentages	Absolute No.	Percentages
0-14	15,257	42.2	24,129	33.9
15-19	3,753	10.3	3,075	4.3
20-39	10,616	29.2	20,036	28.3
40-54	4,193	11.5	16,462	23.1
55+	2,473	6.8	7,361	10.4
All ages	36,292	100	71,063	100

Only acutely ill patients and cases of active trachoma, ringworm of the scalp and venereal diseases were treated in the reception camp (venereal cases were given a course of penicillin treatment before discharge). Persons suffering from tuberculosis were moved to the Government tuberculosis reception hospital at Pardessiya, to await transfer to the appropriate treatment centre. The aged in need of institutional care were transferred to the Government camps for the aged at Pardess Hanna. From there, they were gradually placed in suitable old-age homes or institutions for custodial care. Mentally disturbed persons were taken directly from the camp to a Government hospital. Families incapable of self-support were moved to special camps until other arrangements could be found.

As mentioned, with the change in absorption policy, the Sha'ar Ha'aliyah reception camp was closed down in August 1954.

Between 1948 and 1951, when the majority of immigrants spent long periods of time in so-called "permanent" camps, a complete health service, including hospitals, clinics, mother-and-child health services, convalescence after serious illness or injury, dental and orthopaedic treatment and transport of the sick, was provided in those camps, free of charge, by the Ministry. The following figures illustrate the extent of the Ministry's activities:

Total health personnel	750
Physicians	130
Dentists	17
Nurses	450
Number of cots in camp crèches	2,000
Number of beds in camp hospitals	1,000
(including 430 for children).	

Hospitalization of immigrants was, in the first years, at Government hospitals in the main. Some indication of the dimensions of this undertaking is furnished by the fact that, of 47,000 immigrants from the Yemen, 16,000 were hospitalized within three to four months of their arrival, for an average stay of twenty days.

When the immigrant camps were turned into ordinary villages, the clinics, together with their personnel and equipment, were turned over to Kupat Holim. This enabled the Ministry to reduce its services. In 1953, the staff of the immigrant medical services consisted of no more than 100 workers. By 1958, the services had been reduced to three hostels for handicapped immigrants which were finally shut down and care for their residents was handed over to the local authorities in whose jurisdiction the hostels were situated.

Today no special medical services for immigrants are operated by the Ministry.

New arrivals are automatically integrated into the existing health services.

CHRONIC DISEASES AND REHABILITATION

CHRONIC DISEASES

The urgency of the problem of chronic disease was not felt by the Jewish community prior to the establishment of the State, since pioneering work had mostly attracted the young and able-bodied. But, after 1948, large numbers of chronically ill, disabled and aged people reached Israel. Their care and rehabilitation were entrusted to Malben, an organization for the care of handicapped new immigrants, whose extensive activities postponed the recognition, so to speak, of chronic disease as a truly national problem, demanding action on behalf of established settlers no less than of newcomers.

The chronically ill were frequently living in socially inadequate environmental conditions and this had obscured the medical issue and deflected the attention of many doctors from the truly medical aspects of chronic diseases and their sequelae.

In September 1958, a Division of Chronic Diseases and Rehabilitation was established in the Ministry of Health, to be responsible also for tuberculosis control, previously the responsibility of a special division. The new Division set itself three tasks:

(1) *Encouraging the growth of awareness that chronic disease is a major health problem* at the present time, requiring the establishment of new services as well as the revision of existing policies and practices.

(2) *Preparing professional cadres for the operation of services.* The fate of the chronically ill is not always determined in hospitals; very often, it depends upon the adequacy of assessment of the patient's needs while at home, the promptness of his referral to the appropriate services and the effectiveness of supervision exercised to conserve rehabilitation results achieved in hospital. The public health nurse, aiming to be a true 'family nurse', will be in an ideal position to fulfil these tasks. The training of public health nurses to assume responsibility for the assessment of rehabilitation needs of the chronically ill, and to be a link between the patients, their families and community resources, has, therefore, been one of the principal aims of the Division.

Accordingly, courses and seminars were held on problems of chronic disease, following which the public health nurses were encouraged to take an active interest in the chronically ill members of families under their care. Also, whenever application by a physician or a social agency for services for a chronically ill patient is made, the public health nurse, after visiting the patient's home, makes a comprehensive assessment of the patient's handicaps and of the services that are required for his rehabilitation.

During the last few years, hundreds of public health nurses have been prepared in this way, making a significant contribution to the understanding of the needs of the chronically ill and of ways to meet them.

(3) *Regionalization of services.* Right from the beginning, a regional pattern of the chronic disease service was established. At first, the District Health Officer was considered the hub of all chronic disease services in a region. Now it is believed that the needs of the chronically ill can best be met through close and effective cooperation between the regional hospital and the public health service. In the present setting, the rehabilitation ward of the regional general hospital accepts responsibility for hospital care and consultative out-patient service, while the public health branch accepts responsibility for assessment of the patient's physical handicap within his home environment, for his referral to the appropriate medical services, for maintenance of contact during hospitalization, for facilitating discharge from hospital and, most important, for preserving rehabilitation results after discharge. No bedside nursing is carried out by public health nurses; that is the task of the agency responsible for medical care, e.g., the Sick Funds, or, in some cases, of the municipal health services. This duplication is one of the main weakness of the services for the chronically ill, as it often interrupts the continuity which should be their cardinal quality. On the local level, liaison between the public health service of the Ministry of Health and the medical care services is often efficient but, generally, much closer integration will have to be achieved in the future. At present, applications for medical-rehabilitative services for chronically ill patients are channelled through the District Health Office, which is thus developing into an important link in the chain of services for the chronically ill.

The Role of District Health Offices

To test the possibility of meaningful participation of the District Health Office in the services for the chronically ill, a pilot project was set up in Be'er Sheva in 1960. A special team, consisting of a part-time physician who is a specialist in chronic diseases, a public health nurse coordinator, a social worker and a secretary, was attached to the District Health Office there. While keeping in close contact with the regional general hospital, this team deals with all

problems of the non-hospitalized chronically ill (except for giving ambulatory medical care) and provides effective liaison with all medical and social agencies in matters pertaining to chronic disease. In view of the efficient coordination of services obtained in this way, such teamwork is considered a pattern to be established in other regions.

Another endeavour, designed to strengthen the link between the hospital and the District Health Office, was undertaken simultaneously in two regions. In each, an experienced public health nurse was appointed liaison officer with the rehabilitation ward of the general hospital. Her duties include screening of applications for rehabilitation and nursing services, participation in ward rounds, observation of patients undergoing physiotherapy, occupational therapy and exercises in activities of daily living, interviewing family members, channelling information to the public health services of the patient's home conditions as to discharge and follow-up requirements. This endeavour has proved very successful in establishing a living link between the hospital, the patient's home and the public health and welfare services, and will be extended in the near future to all rehabilitation wards in general Government hospitals.

Hospital Facilities for the Chronically Ill

With the support of WHO, a study assessing the extent of hospitalized chronic disease was undertaken in Israel.¹ It was based upon a 18.4% sample of all discharges from general hospitals during 1953, and a 20.6% sample for 1954. In addition, a one-day census of all chronically ill patients in general hospitals was taken during 1955. Since then, considerable progress has been made in the field of hospitalization.

There are two types of hospital facilities for the chronically ill:

(1) *Rehabilitation beds* — for patients in need of assessment of rehabilitation potential and/or of restoration of function. If located in special wards in general hospitals, these beds serve chiefly middle-aged patients disabled by chronic illness; if in special rehabilitation centres, they mainly serve younger patients disabled by injury and often in need of vocational rehabilitation as well as restoration of function.

(2) *Nursing beds* — these serve patients, usually severely handicapped, bed-ridden and often incontinent, who are in need of nursing services for an indefinite period.

Under the present policy, a rehabilitation ward for the chronically ill is

¹ GELTNER, L. and MORODER, J. "Preliminary report on the problem of chronic disease in Israel", Jerusalem, 1956.

an integral part of any modern general hospital which fulfils a regional function. It is further specified that each such ward should have access to nursing beds within its region. The implementation of this policy is now well under way. Rehabilitation wards have been added recently to four general hospitals: two are operated by Government and two by municipal authorities. Moreover, they are being planned for all general hospitals to be built in the future.

The infirm aged quickly deteriorate and become completely dependent and bed-ridden unless they are kept mobile and are encouraged to carry out, with assistance, at least those activities of daily living which they are capable of performing. Homes for the aged are, therefore, encouraged to operate such wards, where inmates may retain their function for as long as possible. Besides, such wards considerably relieve general hospitals of the growing demand for nursing beds. The value of Malben's 800 beds for infirm aged should be seen in this light.

From Table 1 it will be seen that a large proportion of the chronically ill are still being cared for in private institutions, of which many are of the 'nursing home' type, accepting not only patients with true nursing needs but also infirm aged and younger persons with static disabilities, in need of institutional care for social reasons. Recently, an attempt was made by the Division to utilize at least some of these homes more rationally by creating strong professional and administrative links with the general hospital in their region. Admission to the

TABLE 1
NUMBER OF BEDS FOR THE CHRONICALLY ILL (31.12.1963)
BY TYPE OF BED AND OPERATING AGENCY

Operating Agency	Rehabilitation Beds ¹	Nursing Beds
Government	180	35
Kupat Holim	95	44
Hadassah	20	—
Municipalities	58	—
Malben	175	167 (+800) ²
Other voluntary agencies	—	130
Private ³	—	app. 500
Total	528	876 (+800) ²

1 Refers to beds in general hospitals and in rehabilitation centres.

2 Refers to 800 beds for infirm aged in Malben's homes for the aged. A considerable proportion of these aged patients have true nursing needs and receive services without being transferred to nursing wards.

3 Refers to some 500 beds occupied at that time by chronically ill patients in private institutions.

homes is authorized by an admission board at that hospital; the board bases its decision on a physician's recommendations and, in case of patients coming from their own homes, also on a home visit by the public health nurse. Furthermore, the regional rehabilitation ward at the general hospital remains responsible for the supervision of the patient at the private nursing home, and undertakes to admit him to the general hospital whenever the necessity arises.

No study for estimating the prevalence of chronic disease in Israel's general population or in the population of any particular locality in the country has ever been undertaken. Although it might yield valuable epidemiological data, it cannot take into account the dynamic character of the chronic disease process or the changing needs of the chronically ill. A reliable estimate of the manifold needs of the chronically ill and the services, manpower and cost necessary to satisfy them would have to be based upon actual experience obtained in rendering all these services in a given locality over a given period of time.

The reason for this assumption is the great variety of the services needed as well as their specificity. It follows that, to gauge the need for a certain service, one must be able to give that particular service and not another service instead. If home service cannot be provided for those needing it, referrals to hospitals will increase unnecessarily and an unrealistic figure of required hospital beds will result. More specifically, if patients in need of rehabilitation cannot be promptly admitted to rehabilitation wards, they will deteriorate and the pressure on nursing wards will grow. The same holds good for all the other services needed by the chronically ill.

The valuable experience which public health nurses have gained during the last few years in evaluating patients' needs and the links which they have forged with other services in the community put the Division in a much stronger position for realistic planning for the chronically ill and will help to avoid some of the pitfalls of theoretical estimates of their needs.

CONTROL OF CANCER

Many health agencies are involved in the fight against cancer, and many engage in professional and public education and participate in detection clinics, the development of diagnostic and therapeutical facilities, research and prevention.

As medical services are accessible to practically the whole population (about 80 per cent are health-insured, and the rest have access to them either through private practice or welfare agencies), the main problem is to get the patient to see his physician in time. Health education programmes are directed towards this end, and this is a task shouldered mainly by the Israel Cancer Association.

Much effort has been invested in recent years to raise the 'index of suspicion' of the front-line physician by professional education programmes conducted, in the main, as joint projects of two or more agencies (hospital, Kupat Holim, Medical Schools, Medical Association, Cancer Association).

Detection clinics are operated by the Cancer Association in all major cities. Most of them are exclusively directed towards early detection of breast cancer. An intensified programme, that combines examination of all accessible sites and follow-up with regular meetings of the general practitioners in the area, with systematic screening of defined groups (industry, kibbutzim), and, last but not least, with a built-in evaluation of its effectiveness, is conducted at the Donolo Government hospital in Yafo, again jointly with the Cancer Association.

There are no special cancer hospitals, and patients are accepted in all general hospitals for diagnosis and treatment. Consultation with an oncologist is always possible. Diagnostic procedures are facilitated by sixteen pathology departments which, between them, serve the whole country (hospitals and out-patient clinics). If specialized facilities for diagnosis and/or treatment are required, patients are readily transferred from one institution to another for specialized surgery, or to radiotherapy departments. There are five such oncological institutions in the Tel Aviv area, one in Jerusalem and two in Haifa, one of which is for ambulatory treatment only; all the others serve both hospitalized and ambulatory patients.

There is no difficulty in admitting suspects to hospital for diagnostic work-up and initial treatment, but there is a shortage of beds for long-term patients. For this reason, home care programmes have been started, again as joint projects of Government hospitals and the Cancer Association.

Home care may also be facilitated by provision of special appliances, with home help. Concerted efforts to this end of the Ministry of Health, the Cancer Association and other agencies have been successful. These and other sources of financial aid are also available for the rehabilitation of cancer patients (laryngectomized and others) as well.

Interest of hospital physicians in cancer problems is stimulated by projects in clinical cancer research conducted in hospitals and medical schools. The schools and the Weizmann Institute of Science are also engaged in laboratory research into the study of malignant cells.

Cancer prevention is one facet of the endeavours of the Ministry of Health to combat air pollution and to control food additives, as well as to combat radiation hazards in medical and scientific institutions, in industry and elsewhere.

NEW CASES OF CANCER OF ALL SITES, BY AGE AND SEX, 1960-1963;
ABSOLUTE NUMBERS AND RATES PER 100,000 POPULATION

Age	Absolute Numbers		Rates per 100,000 Population *	
	Male	Female	Male	Female
All ages	9,128	9,739	200.5	220.1
0	16	18	13.9	16.5
1-4	114	72	25.8	17.0
5-9	107	85	19.0	16.1
10-14	99	83	18.7	17.0
15-19	113	103	28.3	27.5
20-24	126	95	40.8	32.3
25-29	108	149	36.3	50.7
30-34	159	280	59.1	98.0
35-39	241	463	90.0	160.0
40-44	326	615	135.6	255.7
45-49	538	985	227.3	391.0
50-54	979	1,298	392.1	545.7
55-59	1,159	1,086	588.9	632.9
60-64	1,397	1,275	943.5	884.9
65-69	1,140	933	1,212.8	1,040.0
70-74	1,047	879	1,624.5	1,259.8
75-79	648	539	1,918.7	1,382.7
80-84	399	380	2,211.8	1,706.3
85+	198	190	1,975.8	1,472.6
Unknown	221	210		
Microscopic confirmation	73.9%	78.2%		
Deaths only	2.2%	2.9%		

* Age adjusted for "age unknown".

Cancer Registry

One of the ways looked to for information on the causes and circumstances of cancer morbidity is epidemiological research. Israel's population, with its many varied groups, provides ample opportunity for epidemiological analysis of the occurrence and course of the disease. Israel is an excellent natural laboratory which, by virtue of its small area, offers unequalled follow-up possibilities.

It is understandable, therefore, that the Ministry of Health should give priority, in the field of chronic diseases, to the establishment of a Central Cancer Registry.

The Ministry started registration of cancer cases on 1 January 1960, in its Division of Chronic Diseases and Rehabilitation, with the cooperation and assistance of the Cancer Association.

Registration at the Ministry had been preceded by collection of data on cancer patients in the Central Bureau of Statistics. The law requires notification to the Bureau of deaths and discharges from hospitals, by diagnosis. With the agreement and help of the Bureau, cancer registration was taken up by the Ministry after 1959.

The purposes of registration were defined as the promotion of epidemiological, clinical and laboratory research; evaluation of the services available in cancer control and their use, and assistance in future planning; ensuring continuity of treatment of the patient and service to, and cooperation with, the medical profession and health agencies concerned with cancer control.

The Registry has been welcomed by physicians and enjoys the cooperation of all health agencies—governmental, municipal, Kupat Holim, Hadassah, Malben, private and Mission hospitals.

Compulsory notification of cancer cases is not thought to be necessary; it is regarded as feasible to get the desired data by seeking the cooperation of physicians, by making use of an administrative order to hospitals to submit available data, and by continuing to utilize the statutory information reaching the Central Bureau of Statistics. Thus, the Registry receives the following information:

(a) *Directly from medical agencies:*

copies of reports of malignancies and premalignant conditions (biopsies, surgical specimens, autopsies, cytology) from all departments of pathology;

copies of case summaries of cancer patients, from all departments of all hospitals (first and re-admissions);

monthly lists of new patients seen at oncological out-patient departments;

case reports by regional chest clinics on patients found to have primary or secondary malignancies.

(b) *From the Central Bureau of Statistics:*

monthly lists of deaths, arranged by diagnoses;

hospital discharge notifications of cancer patients;

(c) *From general practitioners:*

information on special request.

Experience has justified the assumption that collection of data from a variety of sources is the best way of ensuring maximal coverage and of getting the fullest possible information on the individual case. The disadvantages stem from the necessity to process a large amount of diversified material and the resultant danger of duplication due to the difficulty of identifying patients. This is a problem well known to all public agencies in this country, as there are no rigid rules for transliterating non-Hebrew names into Hebrew characters or Hebrew names into Latin characters. The use of phonetic transcriptions and careful attention to any item which may help in identification have proved effective.

The Registry covers the whole country and is, therefore, 'population-based', with data of high epidemiological value. This value is enhanced by the 1961 Census of Population and Housing, the data of which are a sound basis for computing mortality rates for the population as a whole, as well as for the different groups in it.

The basis of epidemiological studies in cancer is the computation of "incidence", a term applying, in international usage, to the number of new cases diagnosed annually. The year of diagnosis is also the starting-point for calculating the patient's survival-time, which is an important measure for the success of the fight against cancer.

The information reaching the Registry pertains to new cases as well as to cases diagnosed in previous years and re-admitted to hospital or dying. It was decided at the outset to differentiate between patients diagnosed before 1960 (full retroactive information cannot be expected) and those who can be followed-up from the time of diagnosis through all stages of their illness. All patients are registered, and an index card is made out for each, but only the data of the second group are transferred to punch cards containing the year of diagnosis, for further work-up.

It is realized that registration cannot be expected to cover all cases during the first years of operation, and that additional cases occurring during those years may be reported at a much later date. With these reservations, it may be assumed that a high degree of coverage for the most important sites may have been achieved.

The question whether and to what extent there are differences between population groups as to incidence of malignant neoplasms in general and for specific sites in particular, can only be answered after careful calculation of separate rates for each site, by sex, age and origin. This yields a very small number of cases for each sub-group. It will, therefore, be necessary to accumulate data from a period of from 5 to 10 years before reaching conclusions as to the degree of differences.

The tables presented in the first comprehensive report on the Cancer Registry* are based on the work-up of a few selected items out of the detailed information on record. The work-up was limited to diagnosis by anatomical site and by demographic data. Particulars of diagnosis, such as histology, stage at time of diagnosis and data on delay, survival and cause of death, are to be published later. The Register contains additional diagnoses, such as lithiasis, diabetes and tuberculosis of all sites. This is practised in the hope that important information on these conditions and their possible relationship to certain malignancies might be derived.

REHABILITATION SERVICES

DEVELOPMENT OF THE REHABILITATION SERVICES

Prior to 1948, certain rehabilitation activities were carried out in the medical and surgical departments of existing hospitals, but the War of Liberation and the influx of disabled immigrants brought an upsurge of interest in organized activities. Since rehabilitation touches on most social welfare programmes in the community—housing, labour, welfare, as well as services for the care of immigrants—services inevitably had to face rehabilitation problems in their respective spheres. The resulting proliferation of departments, each serving a specific clientele, creates administrative situations which bear adversely upon effective rehabilitation.

There are only two agencies dealing with the disabled that have statutory obligations to render rehabilitation services, defined as such, namely, the Ministry of Defence — for soldiers disabled on active service, and the National Insurance Institute — in respect of work accidents and occupational diseases. The door is thus open to an unwelcome variety of interpretations of administrative and professional responsibility by agencies which provide rehabilitation services without having statutory or otherwise clearly defined obligations to do so.

The establishment of the Council for Vocational Rehabilitation in 1958 marked progress towards a better coordination of rehabilitation efforts. Although set up as an advisory body to the Minister of Labour, the Council includes representatives of all medical and non-medical agencies in the field. Organizational and professional problems are discussed at the monthly plenary sessions, in ad hoc committees, and in district committees in Jerusalem, Haifa, Tel Aviv and Be'er-Sheva.

* "New Cases of Malignant Neoplasms in Israel in 1960 and 1961" (September 1963)

The operations of Israel's rehabilitation agencies and institutes may be said to be on a high level of professional competence; but the more the need for rehabilitation grows, and the more physicians, nurses and social workers look to rehabilitation as a natural professional objective, the greater the necessity to integrate all rehabilitation activity into a single administrative and statutory context.

Medical Rehabilitation

In a modern sense, medical rehabilitation means restoring a physically or mentally handicapped individual so that he may attain or regain his optimal bodily, mental, emotional, vocational and social potential. This definition became universally accepted only after World War II, in the wake of revolutionary developments. The dynamic development of our times has had its impact on the treatment of the disabled and has found one of its most significant expressions in the field of medical rehabilitation. The change, in 1960, in the designation of the 'International Society for the Welfare of Cripples' to 'International Society for the Rehabilitation of the Disabled' signifies the new approach.

The handicapped may be divided into three broad groups: children, working people and the elderly. As diverse as their most frequent disabilities are the results of rehabilitation to be achieved. In children, care has to be taken of congenital defects and abnormalities, birth injuries and the consequences of infectious diseases in early life. Blind, deaf, spastic or paralysed children must be prepared for independence in the activities of daily living: they have to be trained to move freely, to communicate with others and to learn to read and write, and so progress to the acquisition of knowledge. Special guidance and primary teaching are as important in these cases as physiotherapy, gymnastics and occupational therapy.

Disability in working people will often be the outcome of an accident, whether at work or in traffic, as is more and more common nowadays. The primary target of rehabilitation here is the restoration of work-capacity, which may be regained after initial treatment geared to quick recovery of physical function, followed by physiotherapy combined with gymnastics and work-orientated occupational therapy. Early rehabilitation and job-placement are the best protection against development of traumatic neurosis and compensation-mindedness.

If invalidity follows a chronic disease of the respiratory or cardio-vascular system, if a stroke paralyses half the body, if eye diseases bring near-blindness, if hardness-of-hearing complicates human relations, there is very seldom a question of return to work; it is a question of adaptation to activities of daily living and independence. Again, the way leads through physiotherapy and

adequate gymnastics to occupational therapy for maintaining physical and mental activity.

Rehabilitation departments, physiotherapy institutes and related occupational therapy facilities are located in various general hospitals or attached to them. One is the Weizmann Rehabilitation Centre adjoining the Tel Hashomer Government hospital, which includes a workshop for prostheses on the one hand, and a section for the rehabilitation of cardiac patients on the other. It is the oldest such unit in the country, an outgrowth of a military hospital which in the beginning had to care mostly for war casualties, but is now an integral part of the large general hospital, with all ancillary and auxiliary services and personnel.

Another Government hospital, Assaf Harofe, has a children's rehabilitation centre.

The Hebrew University-Hadassah hospital in Jerusalem has a department of physical medicine and rehabilitation, with all modern facilities for electrical diagnostics as well as physiotherapy, and there is an occupational therapy unit attached.

The other general hospitals, such as Rambam in Haifa (Government), Beilinson in Petah Tiqwa, the central hospitals for the Emeq in Afula and for the Negev in Be'er Sheva (Kupat Holim), as well as the municipal hospitals of Tel Aviv and Haifa, also have physiotherapy departments, as a rule under the guidance of the orthopaedic surgeon and staffed by well-trained physiotherapists.

Kupat Holim has a special rehabilitation hospital, Bet Loewenstein in Rananana, which started as a small village institution for patients with chronic disease but has expanded into a rehabilitation centre, in the main for neurological and cardio-vascular patients and amputees. It was the first to have a really active rehabilitation workshop with metal-work equipment, in addition to the classical occupational therapy with light work.

A very important innovation is the addition of occupational therapy to physiotherapy departments at the central clinics of Kupat Holim. It will prove to be of great usefulness for those patients who, after minor accidents and injuries, could return to work in a relatively short time. In this way, some alleviation may also be afforded to the overcrowded hospitals, for patients could be discharged earlier if proper rehabilitation were assured for out-patients as well.

As for chronic and geriatric patients, mention should be made not only of the general hospitals and rehabilitation centres, but also of the outstanding work of Malben.

Much, then, has been done in the last few years to extend existing services and develop new ones. Much, however, has yet to be done to establish rehabili-

tation as an equal partner of preventive and curative medicine in the traditional sense, and to make professionals and laymen, teaching institutions and public organizations more rehabilitation-minded.

The Weizmann Rehabilitation Centre at Tel Hashomer Government Hospital

Services at the Centre comprise two departments, 35 beds each, and the following clinics: a clinic for the follow-up of fractures, appliances and artificial limbs; a scoliosis clinic; a clinic for hand injuries; and clinics for children and for military personnel.

The Centre also has an X-ray institute and a plaster-of-Paris room, physiotherapy, occupational therapy, workshops for appliances and artificial limbs, carpentry workshops, an institute for the rehabilitation of cardiac patients, social services, public health nursing including community follow-up of discharged patients; and professional advisers (psychiatry, urology, neurosurgery and general surgery).

PATIENTS HOSPITALIZED, BY DIAGNOSIS
AND DURATION OF STAY IN HOSPITAL, 1962-1965

Diagnoses	Number of Patients	Days in Hospital	Average Stay in Hospital
Paraplegia	122	9,398	77
Amputation of leg	138	6,649	48
Amputation of hand	28	1,298	46
Complications of cardio-vascular diseases	416	17,711	42
Other conditions	583	—	—

Two main groups are operative in the Centre: one to care for persons suffering from internal and chronic diseases, the other dealing with damage to the locomotor system. Each group has its own personnel with the physician as the central figure. In the first group, he is an internist and in the second an orthopaedist; they determine, in the first place, the nature of rehabilitation required; and the sooner it is determined, the better are the chances of attaining the desired end.

The groups are assisted by the services which are at the disposal of all the patients in the hospital, such as physiotherapy, occupational therapy, workshops, social work and, latterly, public health nursing, which is the coordinating link between the rehabilitation team and the family or home to which the patient is to go.

Just as the many and varied activities in an institution for the rehabilitation of the disabled must be the task of a team and cannot be performed by a single person, so also the agencies engaged in rehabilitation are incapable of carrying out all rehabilitative programmes from beginning to end by themselves. Inter-agency cooperation in rehabilitation has yet to be achieved in Israel. Seventeen separate governmental and semi-governmental organizations are presently working in the field, not to mention many voluntary organizations. Each acts independently and avails itself of its own services for the exclusive benefit of a limited group of disabled who are under its care. If there were a coordinating body which would direct patients in need of rehabilitation to the service most suitable to their condition, the expenses of rehabilitation would be considerably reduced, overlapping avoided and the effectiveness of services improved.

Another problem still unsolved is that of vocational guidance and appropriate job placement.

At the Centre, workshops have been opened on a limited scale, but do not yet provide facilities for the functional assessment of the patient. One has to know how much physical force an injured person applies when walking with the aid of an artificial limb or crutches, and how much of his strength is left for a given job. One has to know how to combine the results of clinical examinations, such as electro-cardiograms, with the burden that is laid on the patient by daily chores. Such are the considerations which should be guiding rehabilitation teams in adapting the injured person to his changed condition. As long as one is unable to furnish the placement officer with objective data on the physical and mental state of the injured person, action taken to restore the patient's function lacks all scientific basis.

Nor has the stage been reached where the placement officer and the patient become acquainted while the patient is still hospitalized. At present, the contact between them is through the social worker. Many months elapse between discharge from hospital and suitable job placement. The disabled person's desire for social readjustment, and for an active and creative existence, is weakened, and so are the prospects of successful placement. Moreover, the assessments carried out while the patient was in hospital are often wastefully repeated, and the same conclusions and decisions are reached in the end.

*The Department of Physical Medicine and Rehabilitation of the Hebrew University-Hadassah Medical School **

The Hadassah Department for Physical Medicine and Rehabilitation of the Hebrew University-Hadassah Medical School includes in- and out-patient

* Editor's note: A description of the Hebrew University Hadassah Medical School Department for Physical Medicine and Rehabilitation is included here to provide a more comprehensive view of rehabilitation facilities.

sections. The in-patient section has 12 beds and is so arranged as to give adequate space for the therapy and ambulation (with or without wheel-chair) of the physically handicapped. Patients are admitted for both diagnostic purposes and rehabilitation. A significant proportion of them are referred by other hospitals. The principal group of conditions admitted are the collagenous and joint diseases, the muscular diseases or myopathies, peripheral nerve and spinal injuries or diseases (including quadriplegia and paraplegia), poliomyelitis, cerebral thrombo-embolic process or other brain lesions resulting in hemiplegia, cerebral palsy, multiple sclerosis, peripheral vascular diseases (e.g., arteriosclerosis, thrombngitis obliterans, and Raynaud's phenomenon), and sympathetic reflex dystrophy.

Average period of hospitalization is 30 days.

The out-patient section is responsible for the treatment of all conditions requiring medical, physical or occupational therapy. It comprises electrodiagnostic, electro-therapy, mechanotherapy and occupational therapy units. The electrodiagnostic unit has at its disposal the faradic-galvanic testing, chronaxymetry, time-intensity curve, electromyography and motor and sensory impulse velocity transmission which are used for diagnosis, prognosis and research. About 50 to 60 patients are examined monthly by the unit. In the out-patient section, as a whole, about 600 to 650 patients are medically examined and 2,000 to 2,500 treated each month. About a quarter of them are referred for diagnosis, prognosis, evaluation or consultation from outside Jerusalem; about another quarter are referred by local physicians.

The staff of the department includes six physicians (of whom four are engaged in a specialization programme in physical medicine and rehabilitation), 11 physiotherapists, 8 occupational therapists, 3 registered nurses, a social worker, three student nurses and two male aides. The hospital itself provides all the consultants, laboratory and X-ray services that are called for. Staff physicians serve as consultants for all the hospital services. Patients in any other department receive medical, physical and occupational therapy according to need. There is very close collaboration with the departments for orthopaedic surgery, neurology, neurosurgery and plastic surgery.

The general policy of the department is to provide the requisite treatment for all in-patients and out-patients while, in parallel, planning long-term follow-up and rehabilitation. This is done by assessing medical, psychological, physical and vocational capacity and prognosis, by pre-vocational evaluation, by eventual teaching and training, and, especially, by cooperation with the agencies that will carry out or supervise the rehabilitation programmes. Special clinics are held for poliomyelitis (twice monthly), cerebral palsy (twice monthly), arthritis (monthly), and hemiplegia (monthly).

Extra-mural activities include courses on kinesiology and electrotherapy given at the Government School for Physiotherapy at Assaf Harofe Government hospital, and to students of occupational therapy in Jerusalem, and lectures and demonstrations for general practitioners and specialists as part of the postgraduate general and orthopaedic courses.

The staff is involved in a number of research projects in different fields.

The Children's Rehabilitation Centre at the Assaf Harofe Government Hospital

The Centre serves post-polio patients, patients with cerebral palsy, and patients suffering from other neuro-muscular diseases.

As an integral part of the hospital, the Centre receives services from other parts of the general hospital, especially from the orthopaedic department and from the School of Physiotherapy. It has at its disposal: 53 beds, an outpatient clinic, an encephalographic laboratory, a fully equipped day-care unit, two special education classes and two kindergarten groups.

The polio department provides care for post-polio patients who fell ill between the years 1950-1958. These patients, now in their years of accentuated growth, report back for periodic check-up, each attending as required by his individual needs, for refitting or replacement of orthopaedic appliances, for orthopaedic surgery, such as transplantation of tendons, bone surgery, especially of the spine. (The hospital has an eighteen-bed orthopaedic department for children.) In addition, physiotherapy is provided for some children. The children are admitted as patients to the Rehabilitation Centre or the orthopaedic department and return regularly to the out-patient clinic.

In 1960, the Centre initiated services to children suffering from cerebral palsy. A diagnostic unit with competent staff was established. Children from all parts of the country are seen for diagnosis and comprehensive treatment planning. Often ambulatory examination is not sufficient and children are hospitalized for observation. This is of special importance in borderline cases in which the decision taken may have far-reaching implications for the child's future. A considerable share of rehabilitation beds is allocated for this purpose. In addition, the Centre maintains a day-care unit for children hospitalized in the Centre and for discharged patients residing in the area who have a continuing need for its services. This composite group of children receives a variety of physical therapy, nursery or elementary school education in keeping with individual requirements. Services to in-patient and out-patient children are provided in an integrated fashion.

After discharge from the Centre or the clinic, most of the children attend regular schools in their areas of residence. Others attend special schools — to the extent that such schools are available to them. For children with severe

disabilities, who are able to make use of rehabilitative-educational programmes, a residential school should be established.

As far as professional manpower is concerned, the scarcity of speech therapists is badly felt. There is a need for the provision of speech therapy for speech disturbances other than just those resulting from cerebral palsy — not necessarily as part of the services offered by the hospital, but as part of the school system.

REHABILITATION AND JOB RESETTLEMENT OF PERSONS DISABLED BY WORK ACCIDENTS

In order to collect and collate data on the rehabilitation of persons disabled in work accidents, a survey of this subject was conducted by the Research and Statistics Department of the National Insurance Institute in 1964.

The findings may be summarized as follows:

Extent of Disability and Characteristics of Disabled Workers

About 70,000 - 75,000 employees and self-employed persons are injured in work accidents in Israel annually, involving absence from work for more than two days. Approximately 100 die, and about 1,500 are left permanently disabled; that is, of every thousand persons injured, about twenty are permanently incapacitated. The degree of disability in over two-thirds of the cases is under 25%; 18% suffer a disability of from 25% to 49%; only 13% have a disability of 50% or over.

Of disabled employees interviewed, 45% were industrial and handicraft workers, 20% employed in building and quarrying, 12% in services, 10% agricultural, and 6% clerical and professional workers. Of the self-employed, only 31% worked in industry (mainly in handicrafts); a relatively large number worked in agriculture (21%), communications and commerce.

About one-third of the employees were under 30 years of age; 45% between 30 and 49; and 20% 50 and over. Among the self-employed, whose age composition is different, only 5% were under 30 years of age; 47% were between 30 and 49; and nearly half 50 years and over.

Return to Work

By the time of the survey (eighteen months to seven years after the injury), nine out of every ten of those studied had returned to work. The proportion of return was slightly higher among self-employed (92%) than among employees (90%).

The degree of disability was found to be the main factor influencing return to work: the higher the degree, the lower the proportion of return. Of persons with a disability of under 25 %, 92 % had returned to work by the time of the survey; but only 86 % of those with a disability of from 25 % to 49 % returned to work and only 62 % of those with 50 % or more disability (Table 1).

TABLE 1
THE PERCENTAGE OF DISABLED WORKERS WHO HAD RETURNED TO WORK,
BY EMPLOYMENT AND DEGREE OF DISABILITY

Employment Status	All Degrees of Disability	Degree of Disability		
		0-24 %	25-49 %	50 % and more
Employees	89.9	92.0	86.0	58.5
Self-employed	92.2	94.2	85.0	77.0
Employees and self-employed	90.4	92.4	86.4	62.1

Return to work was also influenced by age. The proportion was relatively low among persons aged 60 years and over. This difference was most marked when the degree of disability was high.

There was an appreciable divergence between permanent employees and seasonal and other temporary workers. The proportion of return to work was 94 % among the former, 72 % among the latter. This discrepancy is apparently related to the difficulties in finding work which are experienced by disabled employees without permanent jobs.

Return to work was also found to be related to the worker's country of origin and the date of his immigration.

Time-lapse before Return to Work

It was found that 55 % of the disabled persons (and 52 % of disabled employees) who returned to work did so within six months of their injury; the interval was 6-12 months in 21 % of cases, 1-2 years in 13 %, and two years or more in 11 per cent.

The interval before return was related to the degree of disability. Among workers with a disability of under 25 %, it was under six months in 61 % of cases, and under two years in 92 %. Among those with a disability of 50 % or more, the corresponding proportions were considerably lower — 22 % and 65 % respectively.

A difference in this context was noted between employees and self-employed. The latter tended to return to work sooner, whatever the degree of disability, apparently because of a stronger motivation to work.

Return to Previous Employment

Only 53% of the disabled employees who returned to work went back to their previous employers; 37% went to a new one, and one in ten began to work on his own account.

The proportion returning to the previous employer was higher among workers with a relatively slight disability; the proportion that became self-employed was higher among those more severely disabled.

There was a marked relationship between return and the length of previous service in the enterprise. The longer it had been, the better were the prospects of a return to the same employer. Where the length of service was under one year, only one in four returned to his former employer; where it was over five years, three out of four did. The size of the enterprise played a very minor role.

A proportion of the self-employed also changed their employment status. Of 13 studied, seven became employees, and nine had not returned to work by the time of the survey.

Changes in Occupation

A number of disabled employees changed their occupations. Workers in agriculture, industry and handicrafts, building and communications tended to become clerical or service workers. Some production workers changed their occupations, although remaining in production; for example, a proportion of the agricultural and building workers went into industry and handicrafts.

Change in Economic Status

Changes in economic status and in sources of income were noted not only among disabled employees who had not returned to work, but also among those who had.

Among workers who had returned, there was a difference between those with a milder disability, who tended to enjoy an income similar to that enjoyed before their injury, and those with a disability of 25% or more, whose income rose slightly, as a result of their getting National Insurance benefits in addition to wages. These comparisons are based upon their real incomes, i.e., allowing for changes in the cost of living.

Among workers who had not returned to work, there was a drop in income. Their real incomes fell by half, and would have fallen by more but for the National Insurance benefits.

These benefits constituted an appreciable percentage of the income of disabled workers — 50% for those with a disability of 50% or more, and 70% for workers who had not returned to work.

Rehabilitative Services Provided to Disabled Workers

Over one-quarter of the workers with a disability of under 25% had rehabilitative care from the responsible section of the National Insurance Institute, and so did one-half of the workers with a disability of 50% or more.

Of 100 cases whose rehabilitative care had been completed, nearly half had been given vocational training, and a quarter individual job resettlement, while the remainder had loans or capitalisation of their benefits, or counselling (see Table 2).

TABLE 2
DISABLED PERSONS WHO RECEIVED REHABILITATIVE SERVICES,
BY TYPE OF SERVICE (*in percentages*)

Type of Service	Percentage
Vocational training	47
Appropriate selective placement (without vocational training)	26
Loans and capitalisation payments (instead of pension)	12
Counselling only	15
Total	100

Training was afforded in a wide variety of trades: diamond polishing, printing, carpentry, draughtsmanship and engraving; some persons were trained to be locksmiths, telephonists, clerical workers, or storekeepers.

Over half of those who were vocationally trained continued to work in their new occupation. The remainder went on working, but not in the new trade.

Vocational training was given mainly to workers under 40 years of age. Older persons tended to take loans or capitalisation of benefits, which they used for establishing or consolidating their own businesses.

REHABILITATION PROGRAMMES FOR DISABLED EX-SERVICEMEN AND DEPENDANTS

The number of disabled war veterans in Israel is relatively large. Less than two decades have passed since the nation fought its War of Independence, which left a toll of disabled veterans of the Defence Forces, as well as widows, orphans and other dependants of men and women who were killed in action; even before the formation of the Army, underground organiza-

tions were engaged in military activities to protect the Jewish population of what was then Palestine. Jewish soldiers from Palestine had fought in the Jewish Brigade and other units of the British Army, and many were discharged permanently disabled. Among the immigrants were thousands of disabled veterans of the war against the Nazis, who had served in the Allied forces or in Resistance movements.

The continuing security needs of Israel make compulsory military service a necessity for all able-bodied persons over eighteen: men are conscripted for 30 months, women for twenty four. On completion of service, men up to the age of 49 and childless women up to the age of 39 go on to the Reserve and are called up, as a rule, for a month's active service every year. The number of soldiers who suffer disabling injuries or illnesses connected with military service of that length is consequently sizeable.

In common with other governmental services, the care of disabled soldiers and bereaved families preceded the establishment of the State. It developed as a voluntary effort of the Jewish community under the Mandate, first under the auspices of the Jewish Agency for Palestine and afterwards as one of the functions of the Va'ad Le'umi, the Jewish National Council.

An Invalids (Pensions and Rehabilitation) Law was passed by the Israel Parliament as early as 1949, laying down the basic rights of disabled veterans of the Israel Defence Forces in those respects. Amendments, of 1950, 1954, 1955, 1961 and 1965, extended it to former members of the Jewish Brigade and other units of the British Army, to members of underground organizations who had been engaged in military operations and to ex-members of the Israel Police Force.

Simultaneously, the legal foundation was laid for the protection and care of families of soldiers dying on active service: this was in 1950, by the passage of the Fallen Soldiers' Families (Pensions and Rehabilitation) Law, for the benefit of orphans, widows and dependent parents of soldiers killed on, or dying as a result of, active service in the Israel Defence Forces; again this was duly amended to include the Police Force.

Enforcement of these Laws and the administration of the benefits and services which they prescribe are in the hands of the Rehabilitation Division of the Ministry of Defence.

The beneficiaries are:

- (a) disabled veterans of the Army, the Jewish Brigade and other units of the British Army, the Haganah, other underground organizations, and policemen, if their disability is a result of injury suffered or disease contracted on, or aggravated by, active war-time or peace-time service in the line of duty and not as a consequence of wilful misconduct;

- (b) unmarried widows, children under the age of eighteen and dependent parents of soldiers whose death occurred as a result of an injury inflicted or a disease incurred on, or aggravated by, service in the line of duty, or as a result of a disability recognized under the Invalids Law.

Disability Pensions

Veterans to whom the Law applies are entitled to pensions according to degree of disability; no other factor, such as, for instance, military rank, is taken into account. Degree of disability is assessed by means of a rating schedule graduated from 10% to 100%. It is done by a medical board of three members, at least two of them specialists in the germane branch: their decision may be appealed against.

The pension is based on 60% of the salary of a junior-grade civil servant, and, as indicated, that percentage of the full figure is payable which is expressed by, and corresponds to, the degree of disability: an unreduced pension thus goes to a 100% disabled veteran. Pensions, like civil service salaries, are linked to the cost-of-living-index, and family allowances are added for wife, minor children and dependent parents. If the degree of disability is between 10% and 18%, a lump sum, not a pension, is paid.

Pensions are meant not to provide full maintenance or be a substitute for a regular income, but rather to offset reduction of income due to impairment of physical ability and to compensate for the discomfort of bodily impairment. It follows, therefore, that an ex-serviceman is eligible for pension at the statutory rate even if he can support himself and earn a regular income. If the disability is permanent, the pension is awarded for life; if it is temporary, the pension is paid until the degree of disability changes enough to warrant its enhancement, reduction or discontinuance.

A claim to pension which is rejected by the Pensions Officer may be appealed against to an appeals tribunal over which a District Court Judge presides, the members being a physician and a representative of the public; no Court fees are payable. The decision of the board is final on points of fact; on points of law, there may be a further appeal to the Supreme Court.

There are certain supplementary allowances to pensions: unemployment, sickness, partial employment, unemployability and old age.

Medical Care

A disabled veteran, once his eligibility is established under the Invalids Law, is entitled to free medical treatment for his disability or any condition caused by it. The treatment includes hospitalization, surgery, convalescence, out-patient treatment and consultation, and medicines.

Where they are called for, artificial limbs and eyes, braces, trusses, orthopaedic shoes, special clothing, crutches, canes, wheel-chairs, eye-glasses or hearing-aids are supplied, and fitting and training in their use are given.

All this care is forthcoming under the supervision of the Division's physicians and at its expense, at community hospitals and medical institutions and from approved private physicians. Where the need for constant attendance or nursing is medically certified, an allowance is paid to cover the cost.

Double amputees and paraplegics get cars; for other serious impairments of gait, ample financial assistance is granted towards the purchase of one. In either case, there is a monthly maintenance allowance. If the walking impediment is less serious, a fixed monthly travel allowance is made.

Blind veterans are provided with cars and 'seeing-eye' dogs and are trained how to use and keep the dogs; upkeep allowances are provided, as well as a regular attendance allowance. As a rule, the blind also get such aids as a tape recorder and a Braille typewriter.

To ensure continuity in supply of artificial limbs and other appliances of due quality, the Division took over the principal local factory, which, in the circumstances, can avail itself of the latest scientific advances in prosthetics and enjoy the most expert advice available. This factory has a workshop for making orthopaedic shoes, trusses, corsets and similar easements.

Occupational and Vocational Rehabilitation

This takes the following forms:

(a) *Grants for Academic Training.* Disabled veterans, within two years of discharge from the Army or Police, are entitled to scholarships for academic training that will qualify them for a gainful occupation. The grants cover all tuition fees and an allowance for books and materials throughout the period of study which is necessary to obtain a Bachelor's degree or the equivalent, or to be equipped to practise the chosen calling. A subsistence allowance is also paid which, added to the monthly pension, equals the salary of a junior-grade civil servant. Those with 50% or higher disability get this allowance as an outright grant, others partly as a grant and partly as an interest-free loan that is repayable on completion of studies.

(b) *Grants for Vocational Training.* Disabled veterans can get outright grants to enable them to learn a trade in a trade school, at a course, or on-the-job. Each grant includes tuition fees, an allowance for books and materials, and a monthly subsistence allowance of between 75% and 145% of the full pension, depending on the length of the course, the degree of disability and the number of dependants.

(b) *Selective Job Placement.* The War-Disabled Employment Ordinance of 1951 makes it obligatory for all medium and large employers to employ disabled veterans at the rate of 5% of the total number on their pay-roll. It also exclusively reserves certain occupations in private and public employment, such as of lift operators, ticket collectors and inspectors, theatre and cinema ushers and cashiers, for disabled veterans; to enforce the Ordinance, there is a unit in the Division which places eligible veterans in jobs selected with special consideration for the particular aptitudes, preferences and handicaps of each.

(d) *Loan Fund.* Long-term loans of up to IL 10,000 at low interest are made available to disabled veterans who seek to earn a livelihood in a small business of their own. Applicants are expected to show an employment handicap resulting from disability, some prior business experience, a sound economic justification for the proposed business, and a reasonable likelihood that it will be remunerative.

Loans are given by a commercial bank from budget funds allocated for the purpose. The interest is 3%, and repayment is spread over up to ten years.

(e) *Vehicles as Rehabilitation Aids.* Veterans with a 25% or higher degree of disability who, by reason of limited walking ability or impaired health, cannot carry on a job or profession or conduct business except with vehicular aid may be allowed exemption from Customs Duty and Purchase Tax on the necessary cars. Loans are given for the actual purchase as well.

Housing

(a) *Houses for Paraplegics.* Where disability owing to the loss, or incapacitation, of both lower limbs is such as to preclude movement without the aid of a wheel-chair, the Division may provide a home specially adapted to the veteran's needs, including furniture, a refrigerator and a washing machine.

(b) *Apartments for Severely Disabled Veterans.* Such pensioners as are so incapacitated, for instance by Tb, as to need better housing, are in certain circumstances given an apartment adapted to their special needs at a low rental.

(c) *Home for Paraplegics.* For quadriplegic, tetraplegic and paraplegic veterans whose relatives are unable to take care of them themselves, the Division runs a home designed and furnished to answer their exceptional requirements. This home has facilities for physical therapy and treatment, occupational therapy and social group-work. Sports and recreations are organized, there is a basket-ball field, a library, and a swimming pool is in contemplation.

(d) *Housing Loans.* These — up to IL. 6,000 in any one case — are granted to veterans occupying inadequate housing, for rental or purchase of better apartments. A commercial bank services the loans from a budgetary

allocation of the Ministry of Defence; repayment is over a period not exceeding ten years, and the interest is up to 6% on any unpaid balance.

(e) *Priority for Low-Cost Public Housing.* Disabled veterans are given priority in qualifying for the purchase of units under the Government's low-cost housing schemes, and can also get an extra mortgage from public funds for the transaction.

Administration of Benefits and Services

The Regional Offices of the Division provide the direct, personal rehabilitation services. They are its chief instruments in discharging the statutory obligation to see to it that the disabled veteran, the war widow, the orphan or the indigent parent is helped in an individual way towards the most satisfactory solution of problems brought about by disability or bereavement.

Pursuing this objective, and conforming to modern concepts of rehabilitation, the Offices use the professional team approach. Coordinated efforts of the trained social worker, physician and placement officer are directed to assisting the disabled person to overcome his occupational handicap and adjustment difficulties, to be successfully employed and take his place in the community. The assessment of rehabilitation needs, the determination of the individual programme and the choice of appropriate services are made in each separate instance by those three staff members.

Every veteran who applies to an Office is given advice and counsel by a skilled social worker, who helps him to define exactly what type of rehabilitation is wanted, to fix and accept a practical occupational target, and to develop, as necessary, a feasible programme of vocational training. In brief, he is helped, thus, to substantiate his rights to, and make the best use of, the benefits and services essential to his rehabilitation and assisted to face dilemmas of personal, social, or vocational adjustment.

Where help in finding a job is solicited, the Office activates a selective placement service which applies the sanctions of the War-Disabled Employment Ordinance of 1951, obliging, as mentioned, every employer to take on a certain proportion of disabled veterans.

A skilled placement worker assesses individual aptitudes and preferences and selects the most suitable job in open employment. A psychologist or psychometrician is consulted whenever it is necessary, and assists and guides the veteran in the first stages of the adjustment to the job situation; in the case of severe handicaps, he also provides any technical equipment that is required to enable the veteran to do the job.

The Regional Offices, moreover, take care of medical needs, whether treatment or restoration. Every eligible veteran may apply to the regional

clinic, and there the authorized physician of the region assesses the medical requirements and refers him to the appropriate community medical services for treatment or for provision of orthopaedic and prosthetic appliances.

For every family of a soldier who died on active service, the Regional Offices provide a personal social service.

So far as they can interpret and clarify the requirements, trained social workers help the client to establish his eligibility; they help to obtain and verify relevant information for means tests; they make social investigations and ascertain the family's need for specific services or benefits. Families with particular problems and difficulties in budgeting, personal adjustment, mother-child relationship, education or vocation are assisted in solving them through a continuous supportive link with the social worker, who either makes the services of the Division available to them or facilitates recourse to other community services.

A more and more prominent feature of the work is the responsibility that Regional Offices assume for the continuing care and guidance of war orphans, whether living with their widowed mothers or in institutions. The social workers are in constant touch with them. Every child who has to have special attention because of emotional or social difficulties is given all possible assistance, and supplementary grants are available to pay for special therapeutic or educational help. As school-leaving age is reached, every effort is made to furnish further training, academic or vocational, and to secure the right type of employment for any that cannot go on with their schooling.

The widowed mothers themselves are afforded all requisite aid, monetary and otherwise, so that they can care properly for their children.

SERVICES FOR THE BLIND

In 1957, the Research Department of the Ministry of Social Welfare conducted a survey of the blind population. Information about 1,706 totally blind persons (1,047 males and 659 females), was obtained. 55 per cent of this population were between the ages of 18 and 55, 35 per cent were over 55 years old and 10 per cent less than 18. About 85 per cent of the blind population originated from Middle Eastern and African countries, the remainder were either born in Israel or immigrants from Europe. On the basis of this survey the total blind population was estimated at between 4,000 and 4,500 in 1957; it was estimated to be between 6,000 and 7,000 persons in 1964.

The main objective of the Service for the Blind in the Ministry of Social Welfare is to help blind persons to become integrated into the working life of the community. The blind person is helped to find out what sort of work he is

capable of doing, to develop the skills necessary for that work and to find a suitable job. Blind persons who have not yet learned to cope realistically with their disability are helped to accept it.

Another objective is to educate the public with the purpose of overcoming popular prejudice and the attitude of pity traditionally displayed toward them.

As has been pointed out, the majority of blind persons about whom information was available in 1957 originated from Middle Eastern and African countries. This posed special problems for their rehabilitation for the following reasons:

a) In many of those countries, blind persons are not expected to earn a living and are completely dependent on their families or communities for care and sustenance;

b) A great many of them had received neither an elementary education, nor a special education for the blind, and were not trained for a trade;

c) The attitude prevailing in those countries towards manual work was negative; this attitude was shared by the blind, thus making adjustment to manual labour on the part of many of them very problematical.

A special feature of rehabilitation in Israel is the concentration of effort primarily on the social and cultural aspects of integration, including learning the language, and only in the second phase on the specific problems caused by blindness.

From the point of view of their employability, the blind may be classified into the following:

a) educated persons, including students, teachers and members of the free professions;

b) persons of normal intelligence who have completed their elementary education, have received special industrial training and are occupied in open industry;

c) persons without formal education who are taught Braille reading and writing and a simple trade;

d) women who have not received any training, who are taught a trade or handicraft;

e) non-Jewish persons living in isolated villages who are given instruction in weaving, knitting and basket-making; some of them are helped to keep their farms and are provided with tools and domestic animals;

f) persons with additional disabilities such as bodily defects, mental deficiency and emotional disturbance; this group consists of persons who are wholly

dependent on their families and on public aid. To be self-supporting, such persons require placement in sheltered workshops or opportunities for home industry.

Every blind person is eligible for vocational rehabilitation and work placement; the Government also provides services for people with severely impaired vision. Rehabilitation services are provided free of charge to indigent blind persons.

Pre-vocational and vocational training is given in the following fields: clerical work and typing; bookbinding; sewing; weaving, including carpet weaving; telephone switchboard operating; thread spinning; and operation of IBM punch card machines; individual assistance is also given to students attending high school or other institutions of higher education.

A sizeable group of blind persons has been placed in open industry, among them 120 telephone operators. The merit of opening new employment opportunities to blind persons goes to the late Dr. Ludwig Cohn, who was the successful reformer of the care for the blind in Germany between the two World Wars and saved his life by emigrating to the Netherlands after Hitler's rise to power. In Israel, he convinced social workers as well as industrialists and administrators by his personal demonstrations that a blind person can do excellent work as a telephone operator, packer of citrus fruits or worker on an assembly line. Now, during the season of citrus-fruit picking which lasts for four months, about 100 blind persons are employed in packing houses of citrus-fruit. Their average output equals that of sighted workers, and, in several instances, even surpasses it. The wages and social privileges are equal to those granted to other workers in the country. Blind workers have been placed in the thread-winding branch in spinning factories. This programme was carried out with the help of the Vocational Rehabilitation Administration of the US Department of Health, Education and Welfare which financed preparatory studies during three years.

The training project in the operation of IBM punch card machines is now carried out with the assistance of the Vocational Rehabilitation Administration of the US Department of Health, Education and Welfare.

During a comparatively short period, many new occupations for blind persons have been opened up. Approximately 1,000 are gainfully employed in business, industry, farming, packing of fruit, spinning, weaving, sewing, and as clerks, switchboard operators, salesmen, teachers and in the free professions. Many of those who have recently lost their sight were able to return to their regular jobs after a period of retraining and many blind women were trained in housekeeping activities.

The Society for the Blind and the Prevention of Blindness was founded in 1953. Members of the Society are active in the transcription of books into Hebrew Braille. They offer help to blind individuals in coping with day-to-day problems, provide scholarships to deserving students and also give assistance to various institutions. The Society established the *Central Library for the Blind* in Netanya, containing books in Hebrew, Arabic, English and German. The library includes the Talking Book Library (recorded books), of special importance for blind persons who are unable to learn Braille because of old age or because of an underdeveloped sense of touch. The activities of 30 home teachers for the blind are affiliated to the library.

The National Council for the Blind, founded in 1958, was established for the purpose of coordinating activities, initiating research and planning for training and services for the blind. It comprises 30 members representing Government offices, voluntary organizations, industry, the medical profession and the blind population itself. It is a member of the World Council for the Blind.

Prevention of Glaucoma

Glaucoma causes approximately 11% of all blindness among adults, but in most instances blindness from this cause can be prevented by early diagnosis and treatment. If treated in its early stages, it usually can be kept under control, since glaucoma is controllable, if not curable. Hence the importance of early diagnosis and, once diagnosis has been confirmed, the necessity to continue treatment and to have regularly-spaced eye examinations. When eye drops fail to control the intra-ocular pressure, operation is necessary. A minor operation performed early is much more successful than a more extensive one later. Glaucoma, when allowed to get out of control, because of an individual's indifference, may lead to a visual loss that cannot be repaired by medication or surgery.

In a general, busy out-patient department, only a small percentage of all glaucoma patients remain under observation for a long period. This is understandable, because it is difficult for the treating physician to find the time for the exacting follow-up that is essential in most chronic glaucomas, and for reassuring and encouraging the patient. But a close doctor-patient relationship and complete cooperation and confidence are absolutely necessary for the saving of vision. In 1952, the first specialized glaucoma clinic was organized in the Eye Department of the Hadassah-Hebrew University hospital. The clinic keeps complete records, including a careful history of each patient and his family, and much factual material, indispensable in determining whether the cause of the disease is stationary or progressive. The ophthalmologist in charge has a concentrated opportunity to study different aspects of glaucoma and obtain

the training and experience requisite for all diagnostic and therapeutic purposes. To the ophthalmologists who refer the patients for consultation, the clinic renders detailed examinations and accurate follow-up services.

Before 1952, the clinic had about 200 patients constantly under its care. Since then, the number has grown steadily and there are now about 1,500 patients registered. In 1953/54, intensive post-graduate courses in glaucoma were held, in which seniors from other ophthalmological departments in the country participated. The effectiveness of a specialized glaucoma clinic was quickly recognized and, shortly afterwards, centres were established in other ophthalmological departments. Glaucoma awareness was soon aroused not only among ophthalmologists but also among general practitioners. The public was soon alerted to the first vague symptoms of the disease and was ready to be directed by practitioners and ophthalmologists to the newly organized centres. This has been invaluable in combating an insidious affliction and in preserving sight.

Prevention of Retinal Detachment

In January 1960, a countrywide programme was inaugurated to study and to prevent retinal detachment. In this, all the eye departments of the country co-operate, Professors Stein (Tel Hashomer Government hospital) and Michaelson (Hadassah-Hebrew University hospital) serving as the coordinators. The preventive treatment of retinal detachment is based on the detection of degenerative changes, including hole formation, which precede the detachment. Special clinics were set up in each hospital for this purpose. Treatment consists of closure of the retinal holes by means of diathermy or photocoagulation. Details of each case treated, and the number of retinal detachments that occur, are reported to a central secretariat. In this way, it is hoped to assess the success of preventive treatment on a countrywide scale.

Prior to 1960, the annual incidence of retinal detachment was about 26 per 100,000 of the population over 40 years of age. It is too early yet to assess a possible decline in the incidence.

CARE OF THE AGED

Recognition of the aged as a group with specific health problems was slow in coming in Israel. So far, no planning for the care of the aged on a national scale has emerged, but significant contributions to progress in this field have been made in some sectors, thanks to the activities of municipalities and voluntary organizations.

Hospitalization — The aged needing hospital treatment for intercurrent illnesses or exacerbations of chronic conditions are admitted to general wards. So far, no geriatric departments on the British model exist — although a pilot programme for one such unit is under consideration. In recent years, the aged suffering from chronic disabling conditions have been admitted to rehabilitation wards where their special needs for physical restoration receive adequate attention.

Ambulatory Care — In spite of the wide availability of medical care in Israel, the specific needs of the aged often remain unsatisfied. Some of the reasons are organizational, but in the main it is the tardy recognition of the aged as a group with specific needs which must be met by specific services.

Homes for the Aged — Lack of developed community organization precluded any large scale effort to settle the many unaccompanied aged or aged couples who arrived during the early phases of mass immigration. Moreover, many of these were survivors of the concentration camps or refugees from Middle East countries, without motivation or desire to live independent lives. This situation created an increased demand for sheltered living and may explain the prevailing rather high rate of 7% of persons over 65 living in homes for the aged. Much as these unavoidable early developments may be regretted, they provided an opportunity for gaining useful experience in institutional care for the aged. With the passing of the emergency, aged immigrants have been settled, wherever possible, in the community.

By now, patterns of communal living for the aged, such as small apartments in close proximity of homes for the aged, or apartment houses with or without central facilities, have been established. The aged are encouraged to live independent lives as long as possible and to enter homes only when infirmity becomes incapacitating. This trend, although by no means country-wide, will demand re-evaluation of the role of homes for the aged and their interaction with other medical and community services.

OCCUPATIONAL HEALTH SERVICES

As regards occupational health services, the period under British administration is marked by the Mandatory's activity in the administrative and legal fields and that of the Jewish community in the organization of voluntary health services.

The main Ordinances promulgated were: Department of Labour, 1943; Accidents and Occupational Diseases (Notification), 1945; Factories (now Safety at Work), 1946; Workmen's Compensation, 1947.

Their enforcement was a statutory liability of the then Department of Labour, which set the basis for labour inspection, today largely the basis for the organization of such inspection in Israel.

The main activity of the Mandatory Administration from 1943 onwards was safety inspection. Industrial health was left to the initiative of the Jewish community on the whole, as was the case with other health services.

Growing industrialization (the developing kibbutzim may be regarded as industrial units in the modern conception of occupational health) brought with it the necessity for more specialized services. The lack of specialists was met to a certain extent by an influx, after 1933, of physicians from Germany, some of them highly experienced in industrial hygiene. Thanks to them, a greater understanding of the problems by both labour and employers led to studies of conditions at places of work. Increased awareness of occupational health needs in industry was stimulated by the Workmen's Compensation Ordinance, 1947; under an agreement signed between employers, organized in the Manufacturers' Association, and Kupat Holim, the latter undertook to render medical care in labour accidents and any other industrial medical services asked for by the employers. This, of course, left the initiative to the employers.

In 1948, accelerated industrialization set in. The trend manifests itself in four directions: intensified exploitation of relatively small mineral resources; encouraging the establishment of chemical industries; the setting-up of industries in areas chosen for development; and the setting-up of industries within the kibbutzim, alongside an expanding mechanization of agriculture.

Legislation

Enforcement of industrial safety and hygiene is the task of the Division of Labour Inspection in the Ministry of Labour, headed by a Chief Inspector, with a Deputy, a Medical Inspector, five Regional Inspectors and a staff of Inspectors of Labour.

The Division is charged with the administration of the following Laws, Ordinances and Rules:

Department of Labour Ordinance, 1943; Accidents and Occupational Diseases (Notification) Ordinance, 1945; Factories Ordinance, 1946; Hours of Work and Rest Law, 1951; Annual Leave Law, 1951; Prohibition of Night Baking Law, 1951; Employment of Young Persons Law, 1953; Organization of Labour Inspection Law, 1954; Employment of Women Law, 1954; Explosives Law, 1954; Factories (Docks) Rules, 1947; Factories (First Aid) Order, 1950; Factories (Use of Explosives and Storage in Quarries) Rules, 1952; Employment of Young Persons (Work Book) Rules, 1954; Employment of Young Persons (Medical Examinations) Rules, 1954; Employment of Young Persons (Prohibited Trades and Limited Trades) Rules, 1954; Employment of Women (Prohibited Trades) Rules, 1954; Factories (Building Operations) Rules, 1955.

Israel has ratified a number of International Conventions for labour protection, and the Division sees to the carrying out of the following:

Hours of Work (Industry);
Hours of Work (Commerce and Offices);
Night Work of Young Persons (Industry);
Night Work of Young Persons (Non-Industrial Occupations);
Night Work (Bakeries);
Minimum Age (Industry);
Minimum Age (Agriculture);
Medical Examination of Young Persons (Industry);
Medical Examination of Young Persons (Non-Industrial Occupations);
Weekly Rest (Industry);
Holidays with Pay;
Labour Inspection.

Statutory regulations have already been enacted by the Ministry of Labour to ensure medical supervision of workers in certain dangerous occupations (lead, mercury, dusts, highly toxic pesticides), while others (e.g., noise, industrial solvents) are in preparation.

The Inspectorate in the main visits factories and other places of employment to check and enforce the safety of workers, arrangements for preventing occupational diseases, hygienic conditions, and welfare.

The Division maintains a canteen supervision and advisory service, which endeavours to raise nutrition standards by supervision of the quality, quantity, hygiene and cost of meals in them.

In 1958, a small industrial hygiene laboratory was set up so as to enable the Division to test the concentrations of dusts and fumes at places of work.

Services

Industrial health services are determined by three factors: statutory requirements for health supervision of employees in occupations with special risks; voluntary health insurance with the Histadrut and its Kupat Holim; and the agreement between the Manufacturers' Association and several Sick Funds to secure industrial medical services by employers paying a per capita 'parallel fee' to the Sick Funds in which their employees are insured.

(a) Medical Services

Kupat Holim, by virtue of its membership, serves about 80% of the working population. To provide medical care services to industry, it has set up industrial medical departments, usually attached to its central (specialist) clinics, covering clinical aspects of industrial medicine.

Besides activities which are established functions in industrial medicine such as pre-employment and periodical examinations, advice to employers in different medical matters, organization, supervision and instruction in first aid, health education and others, Kupat Holim has established several traumatological clinics to render medical aid in cases of work accidents.

The establishment of traumatological clinics fulfils the obligation of Kupat Holim vis-a-vis the National Insurance Institute as one of the Institute's medical agencies for the purpose of the statutory provisions respective labour accidents and occupational diseases.

Other Sick Funds, like that of the National Labour Organization, also provide services for industry, but of smaller scope by far.

It is seen, therefore, that industrial medical services in Israel are provided at present by medical agencies rather than by in-plant medical departments as in certain Western countries, although a number of in-plant medical departments are to be found in larger factories, staffed by personnel of Kupat Holim and providing certain services themselves, while referring to the central clinics patients in need of services not available at in-plant clinics.

(b) *Industrial Hygiene and Safety*

The Law of Labour Inspection, 1954, empowering the State to ratify the International Convention on Labour Inspection, also provided a legal basis for setting up safety and hygiene committees in factories and a country-wide Institute for Safety and Hygiene. The governing body of the Institute is composed of Government representatives nominated by the Minister of Labour, and representatives of employers and of employees.

Besides organizing and advising local committees, the Institute counsels industry in matters of industrial hygiene and safety and is active in the education of workers in these matters.

Teaching and Research

In the Hebrew University-Hadassah Medical School, teaching of occupational health is on two levels:

(a) Undergraduate — a number of lectures on occupational health are included in the curriculum of preventive medicine.

(b) Post-graduate — since 1960 there has been a course in social medicine and public health, leading to a M.P.H. degree. Occupational health is a required subject in the curriculum.

One of the aims of the course is to draw the attention of M.P.H. candidates to the new epidemiological dimension of an industrialized society and the resultant public health implications. This applies especially to a society in the phase of accelerated industrialization such as Israel's is, with its particular human problems arising in different strata of the population, and the problems of human and environmental adaptation in the work situation.

A toxicological study of agricultural pesticides was undertaken at the occupational health research laboratory of the Hebrew University-Hadassah Medical School. The laboratory has also done research on DDT storage in the human body and toxicological studies at the phosphate mines (effect of fluorine and uranium on miners); other research is concerned with absenteeism.

PUBLIC HEALTH NURSING SERVICE

The beginning of public health nursing in Israel dates back to the early twenties. The first group of nurses to obtain their diplomas at the Hadassah Nursing School graduated in 1921. In the same year, the first mother-and-child health centre, known then as 'Tipat Halav' (Drop of Milk), was opened near Damascus Gate in Jerusalem. In 1922, medical supervision of school children was started.

Correspondingly, the Mandatory Administration took care of health services for the Arab population. In some Arab villages midwives were employed, partly to supervise ante- and post-natal care, and the care of infants. In some urban Arab schools, health services were provided by nurses.

The network of mother-and-child health centres gradually expanded and there were 120 of them by the time the State was established. Opportunities for public health nursing were offered by social medical services and by the Anti-Tuberculosis League. The concept of treating the family as a whole rather than the individual crystallized only gradually.

Public health nursing services are currently provided in the main by the Ministry of Health, Kupat Holim, and the Tel Aviv-Yafo and Jerusalem municipalities.

The Functions of the Public Health Nurse

The public health nurse is a member of the community health team, and provides nursing care to the family, including the care of pregnant women, infants, kindergarten and school children and elderly people, especially those afflicted by long-term illnesses.

Much thought has been given to the proper definition of the tasks of the service. The WHO definition of public health nursing expresses the conception accepted in Israel: "... is a special field of nursing that combines the skills of nursing, public health and some phases of social assistance, and functions as part of the total public health programme for the promotion of health, the improvement of conditions in the social and physical environment, rehabilitation, and the prevention of illness and disability.

"It is concerned for the most part with care of well families and with non-hospitalized sick persons and their families, with particular groups of people and with health problems that affect the community as a whole. Because of the traditionally close relationship between nurses and the families they tend, public health nursing frequently serves as the channel by which many other public health and community services are brought to the public." (*WHO Expert Committee on Nursing*. WHO Techn. Rep. Ser. 1959, 167, 4.)

In each District Health Office a Public Health Nursing Supervisor heads a public health nursing team, and is responsible to the District Health Officer for planning implementation and evaluation of the services. Supervisors meet with the Director of Public Health Nursing monthly, to discuss their problems and to study particular subjects.

Public health nurses must be either graduate nurses with post-basic training, or practical nurses with a supplement of public nursing orientation. All carry out their duties according to policies and needs decided by the divisions of the Ministry of Health to which they are assigned.

In 1965, service was provided in 645 mother-and-child health centres.

In 1964, the number of educational institutions providing school health services amounted to 1,221, with 432,533 pupils.

To encourage the teaching staffs of schools to include health education in the general curriculum, a plan for health teaching was prepared, in cooperation with the Ministry of Education and Culture.

The annual 'Health Week' in schools centres on the study of a particular subject; it has become a permanent feature of the curriculum and the school nurse plays the most active role in it.

Public health nurses take part in the epidemiological investigation of the spread of communicable diseases. Within the epidemiological unit of the Health Office, the epidemiology nurse supervisor is responsible for helping the nurses in the field to identify and evaluate morbidity in their districts.

A start has been made in the follow-up of known chronic cases. An integral part of the public health nurse's work is with centres for the prevention of diseases of the lungs; the majority of home visits to patients under such care are made by her.

The role of the nurse as regards the chronically ill is to evaluate the functional condition of her patient; investigate the possibilities of his rehabilitation in hospital; prepare the home and family to receive the patient on discharge from hospital; advise the family as to his care. As many of the discharged patients are either incapable of working, or only capable of working to a limited degree, the nurse maintains close and constant contact with rehabilitation

services. In some Health Offices, as mentioned, special nurses have been assigned to this duty; their task is to investigate the problems of the chronically ill, to become acquainted with the institutions and resources for care in the district; and to guide the public health nurses in the field in appraising nursing needs.

PUBLIC HEALTH NURSES EMPLOYED, 1965

Agency	Numbers of Nurses *
Ministry of Health	737
Kupat Holim	285
Tel Aviv-Yafo Municipality	
Department of Education	75
Department of Public Health	110
Jerusalem Municipality	85
Haifa Municipality	14
Other Local Authorities	54
Centre for the Prevention of Lung Diseases (Yafo)	8
Anti-Tuberculosis League	8
Clinics for the Prevention of Lung Diseases	34
WIZO Jerusalem	2
Hadassah Medical Organization (Kiryat Hayovel)	26
Total	1,438

* Includes practical nurses and some auxiliary workers.

Education and Training

Post-basic courses for registered nurses, held annually, were inaugurated by Hadassah; the Tel Aviv municipality and the Ministry of Health (which held its first course in 1955) followed suit.

Until 1958, the course lasted 24 weeks with approximately 250 hours of class work; since 1961, a nine-months curriculum has been introduced, with 550 hours of tuition.

The course includes supervised practice in field work at mother-and-child health centres, primary and secondary schools, seminaries and special schools, villages, rehabilitation wards of hospitals and clinics of the Centre for the Prevention of Diseases of the Lung. Students are introduced to other social services as well.

The Department of Social Medicine of the Hebrew University-Hadassah Medical School offers a graduate course leading to the MPH degree; nurses with B.Sc. or B.A. degrees who meet the entrance requirements, are eligible.

Special attention has been devoted to in-service training, with programmes on various health topics, chosen according to local needs, and to study days for groups of public health nursing coordinators in special fields of practice.

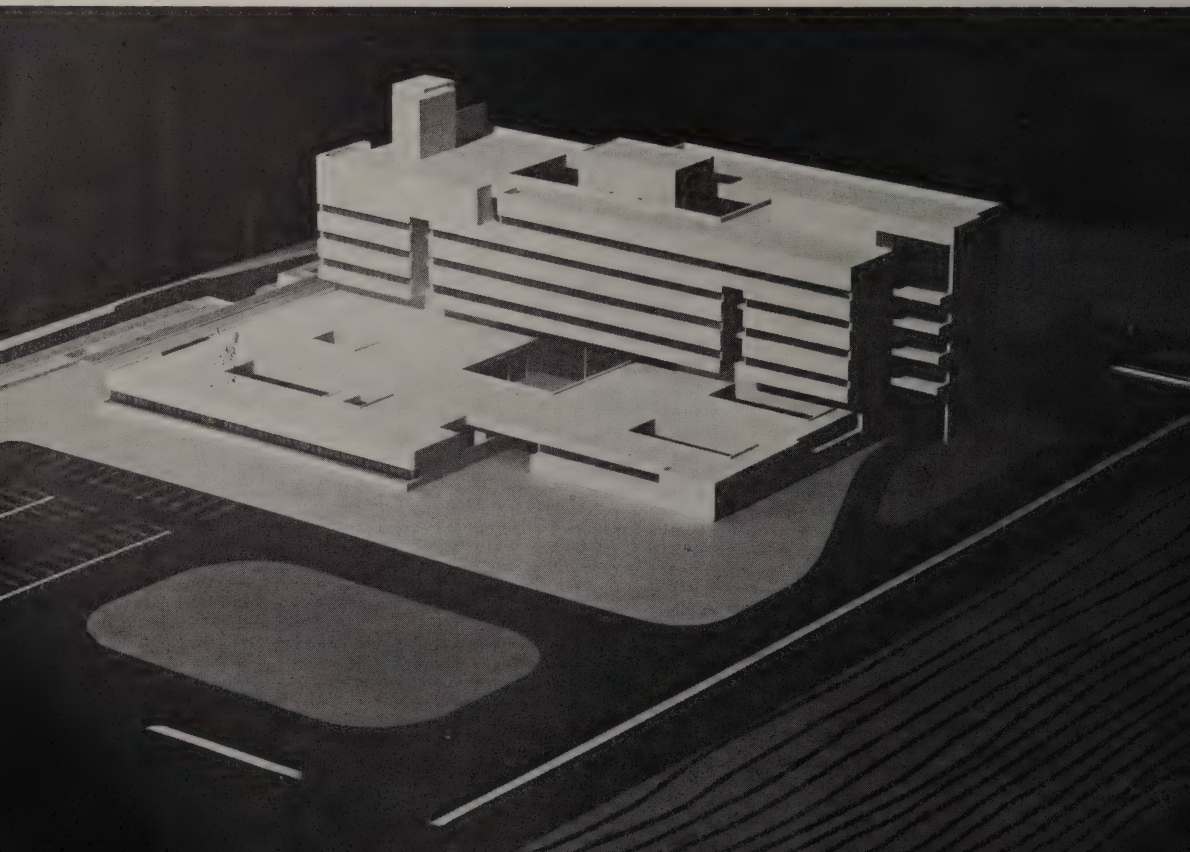


Rambam Government Hospital, Haifa



Ashqelon Health Unit

Planned Government Hospital, Zefat



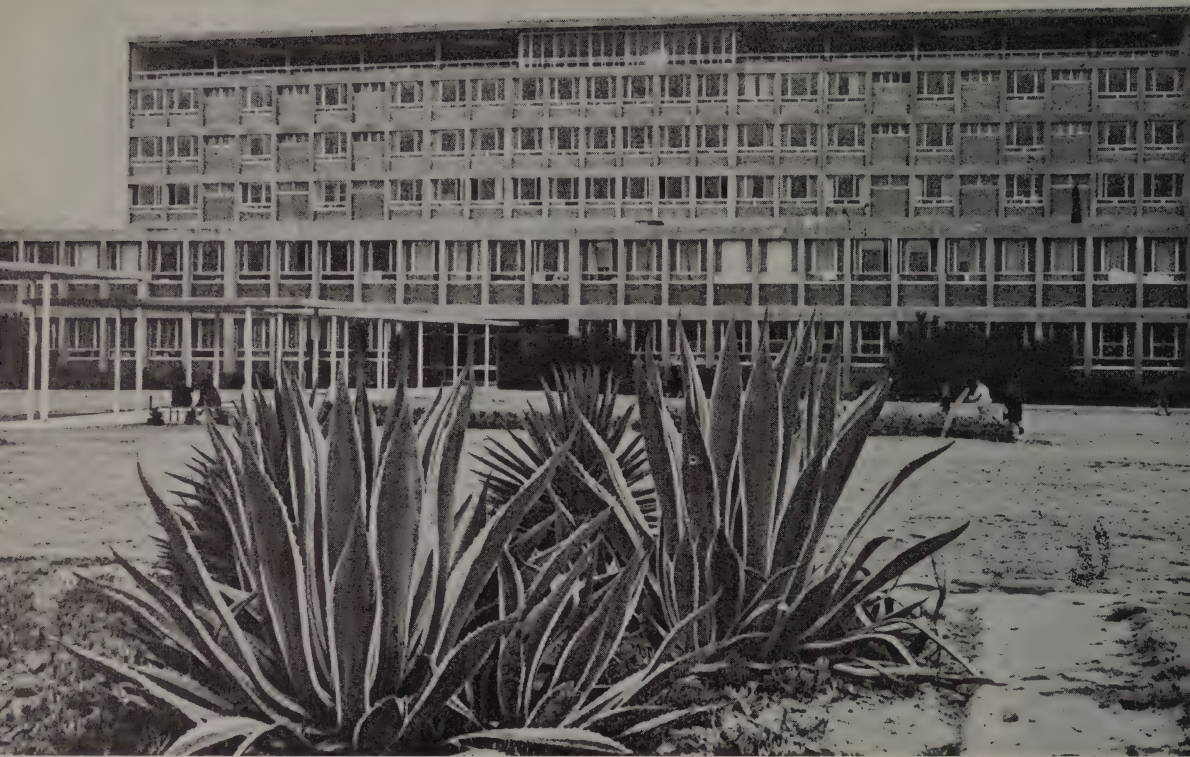


Kupat Holim Beilinson Medical Centre, Petah Tikva



Hadassah Medical Centre, Jerusalem





Kupat Holim Central Negev Hospital, Be'er Sheva

Kupat Holim Meir Hospital, Kfar Saba



Kupat Holim Central Emek Hospital, Afula





Ichilov Municipal Hospital, Tel Aviv-Yafo

HOSPITAL SERVICES

DEVELOPMENT AND DISTRIBUTION OF HOSPITALS

The hospital policy of the Mandatory Government was meant almost exclusively to provide care for the Arab population. The Jewish population developed a network of hospitals, maternity homes and outpatient clinics, supported partly by Jewish organizations abroad and partly by the Jews of Palestine themselves. For the Arab population, it was mostly institutions for the treatment and prevention of communicable diseases that were set up. No services were available to specific groups within the Arab community in the areas of maternity and child health, school health and chronic illness.

As for the Jewish population, the Hadassah Medical Organization opened hospitals in Jerusalem, Zefat and Tel Aviv. Kupat Holim built and maintained general hospitals in Afula, Petah Tiqwa and Haifa, and a maternity home in Hadera. Hospitals were maintained by Jewish communities in Haifa, in Tiberias, and in Jerusalem (two semi-private non-profit hospitals, Sha'arei Tsedek and Bikur Holim, supported by local and overseas charity).

After the establishment of the State, when the Ministry of Health was entrusted with the task of organizing medical services, one of the most acute problems was to provide facilities for the hospital care of the rapidly growing population. There was an acute need for an immediate increase in the number of general hospital beds: hospitals were improvised in abandoned military camps of the Allied forces; existing hospitals were reorganized and enlarged by the addition of prefabricated and wooden pavilions. The Hadassah University Hospital on Mount Scopus became inaccessible and had to be evacuated and rehoused in a series of old and unsuitable buildings until the new premises of the Hadassah Medical Centre became available in 1961.

A further challenge was to provide newcomers and others with hospital facilities in development areas in Galilee and the Negev, where none had previously existed. General hospitals were opened in Tiberias, Nahariya, Ashqelon, Be'er-Sheva, Eilat, Hadera and Kfar Saba.

Another assignment was to add to the number and improve the quality of medical specialties in general hospitals (Tables 1, 2, 3, 4). Even the smaller hospitals now have ophthalmic and orthopaedic wards, and in many there are

beds for urology, plastic surgery and oto-rhino-laryngology. X-ray and pathological departments and specialist laboratories have been added. Departments for treatment and rehabilitation of chronic and mental patients have been introduced into general hospitals.

The public and non-profit organizations also intensified their efforts to expand their hospital services. Kupat Holim and the municipalities built new hospitals and extended existing ones, and Hadassah opened its new, modern premises in Jerusalem in 1961.

The bed-population ratio has thus been maintained at a steady level over the past 10-15 years. A threatened drop in the ratio was halted, and the curve is expected to rise during the next 5-10 years, as hospitals and wards, now in the planning stage, are completed.

Generally speaking, the most important objectives in the planning of hospital services are:

- Replacing inadequate existing hospitals at the same time as new hospitals are going up;
- Developing hospital services, so that they are more evenly distributed geographically as well as according to priority needs;
- Replacement of obsolete and provision of additional new equipment;
- Education, undergraduate and postgraduate, of medical personnel in sufficient numbers and of sufficient standard, and recruitment of candidates for the para-medical professions;
- Development of research methods for the evaluation of hospital services and their true cost.

TABLE 1

HOSPITALS BY OWNERSHIP, AT THE END OF 1948, 1965, 1966

	1948	1965	1966
Government	7	33	34
Local Authorities	2	4	4
Kupat Holim	10	14	14
Hadassah	3	1	1
Malben	—	5	5
Mission Hospitals	5	8	8
Other Public Hospitals	8	11	11
Private Hospitals	31	59	65
Total	66	135	142

TABLE 2

HOSPITALS BY CATEGORY, AT THE END OF 1948, 1965, 1966

Category	1948	1965	1966
General	35	41	42
Tuberculosis	9	1	1
Mental Diseases	19	41	42
Mental Retardation ¹	—	20	23
Chronic Diseases	2	27	29
Rehabilitation	—	4	4
Leprosy	—	1	1
Total	66	135	142

¹ Hostels for custodial care are included in the figures for 1965 and 1966.

TABLE 3

HOSPITAL BEDS, ACCORDING TO OWNERSHIP AND CATEGORY, 1948, 1965, 1966

Ownership	1948	1965	1966
Government	689	7,608	8,124
Local Authorities	451	1,261	1,359
Kupat Holim	649	3,121	3,169
Hadassah Medical Organization	431	491	507
Malben	—	399	396
Mission Hospitals	268	444	443
Other Public Hospitals	771	889	899
Private Hospitals	1,367	4,169	4,729
Total	4,626	18,382	19,626
Category			
General	2,681	8,431	8,804
Tuberculosis ¹	623	394	434
Mental Diseases	1,197	5,972	6,280
Mental Retardation	—	1,865	2,217
Chronic diseases	125	1,223	1,424
Rehabilitation	—	497	467
Total	4,626	18,382	19,626

¹ The number of beds for tuberculosis rose to 1,975 in 1952 and has been reduced steadily since.

TABLE 4

BEDS PER 1,000 INHABITANTS BY CATEGORY, 1948, 1965, 1966

	1948	1965	1966
General ¹	3.08	3.06	3.31
Tuberculosis	0.71	0.17	0.16
Mental Diseases ²	1.38	2.33	2.36
Mental Retardation ³	—	0.72	0.83
Chronic Diseases ⁴⁻⁵	0.14	0.58	0.34
Rehabilitation ⁶	—	0.22	0.18
Total	5.31	7.07	7.39

¹ Includes leprosy.² Includes beds for mental diseases in general hospitals.³ In 1948, beds for mentally retarded were included in mental diseases beds.⁴ Includes beds for mentally retarded in institutions for chronic diseases.⁵ Includes beds for chronic diseases in hospitals of other categories.⁶ In 1948, beds for rehabilitation were included in beds for chronic diseases.

TABLE 5

MATERNITY BEDS, BY OWNERSHIP, ABSOLUTE NUMBERS AND RATES PER 1,000 WOMEN
15-44 YEARS OF AGE, AT THE END OF 1948, 1965 AND 1966

Ownership	1948		1965		1966	
	Beds	Rates per 1,000	Beds	Rates per 1,000	Beds	Rates per 1,000
Government	59	0.33	322	0.61	322	0.58
Local Authorities	110	0.61	116	0.22	116	0.21
Kupat Holim	109	0.60	275	0.47	275	0.50
Hadassah	18	0.10	46	0.08	46	0.08
Mission Hospitals	18	0.10	78	0.15	87	0.16
Other Public Hospitals	35	0.19	52	0.09	62	0.11
Private Hospitals	168	0.32	65	0.12	65	0.12
Total	517	2.25	954	1.74	963	1.76

TABLE 6

PAEDIATRIC BEDS, BY OWNERSHIP, ABSOLUTE NUMBERS AND RATES PER 1,000 CHILDREN
0-9 YEARS OF AGE, AT THE END OF 1948, 1965 AND 1966

	End 1948		End 1965		End 1966	
	Beds	Rate per 1,000	Beds	Rates per 1,000	Beds	Rates per 1,000
Government	11	0.06	588	0.98	603	1.00
Local Authorities	102	0.57	92	0.15	134	0.21
Kupat Holim	26	0.14	402	0.67	427	0.71
Hadassah	30	0.17	52	0.08	60	0.01
Mission Hospitals	38	0.21	30	0.05	—	—
Other Public Hospitals	38	0.21	124	0.21	124	0.20
Private Hospitals	—	—	—	—	—	—
Total	245	1.36	1,288	1.25	1,348	2.14

ORGANIZATION OF HOSPITAL SERVICES

One of the main problems in organizing the hospital services in Israel is the multiplicity of operating agencies, each with its own policy. The Curative Services Division of the Ministry of Health is responsible not only for planning, building and maintaining Government hospitals, but also for supervision and coordination of all other hospitals. This responsibility has its legal basis in the Public Health Ordinance of 1940, which contains a few sections on registration of hospitals. Work has begun on the preparation of comprehensive legislation on hospitals and hospitalization, but progress in drafting so complex a bill is inevitably slow.

The multiplicity of hospital ownership creates difficulties in coordination and cooperation. Some hospitals consider themselves obliged to serve defined populations: this applies to municipal hospitals, and to the Kupat Holim hospitals. The Ministry has endeavoured to remedy the situation to a certain extent by tying priority of hospitalization to medical considerations, largely by Government accepting the obligation to cover the hospitalization expenses for patients admitted from outside the administrative 'catchment area'. Accordingly, hospitals in certain areas are on a duty roster, with fixed admission days for urgent cases.

The need for additional beds for chronic patients is still considerable. Most beds are in private (profit-making) institutions and some of those institutions require improvement of physical and medical standards. Malben is limiting its scope of work and turning over to the Government the institutions

which have hitherto been maintained by it; this process has already been completed for Tb beds, and a start has been made on the transfer of direct responsibility for the upkeep of general long-stay institutions. In implementing this programme of retrenchment, Malben continues to participate financially in the running of each institution for a few years after its transfer.

The rate of beds for geriatric patients and the chronically sick has not risen during the last few years, but the policy of extending domiciliary care has served as a substitute for hospitalization and has hastened the rehabilitation of these patients. These services are supervised by the Division for Chronic Diseases in the Ministry through the District Health Offices.

Table 7 shows the distribution of beds for the chronically sick, by operating agency.

To encourage addition of hospital beds, the Ministry increased the maintenance grant for new general beds. During the first three years, the grant for new beds is twice the usual amount. In 1964/65 it was IL 2,800 annually per new bed. In addition, the Ministry of Interior operates a lottery, whose proceeds are devoted to the construction of schools and hospitals. Municipalities are entitled to receive long-term loans from the lottery, up to two-thirds of the cost of a hospital building, according to plans approved by the Ministry of Health.

TABLE 7
BEDS FOR CHRONIC DISEASES, TUBERCULOSIS, REHABILITATION AND LEPROSY
BY OWNERSHIP, AT THE END OF 1965

Ownership	Beds, Absolute Numbers	Percentage of	
		Total Bedstrength Available for Chronic Disease	Total Bedstrength of Operating Agency
Government	697	27.4	9.2
Local authorities	317	12.4	24.7
Kupat Holim	247	9.6	7.9
Hadassah	12	0.5	2.4
Malben	399	15.7	100.0
Mission Hospitals	22	0.9	4.9
Other Public Hospitals	210	8.3	23.6
Private Hospitals	642	25.2	12.8
Total	2,546	100.0	13.9

UTILIZATION AND COST OF HOSPITAL BEDS

A special characteristic of hospital economics in Israel is the high degree of utilization of available beds. Although the overall rate of beds per population is low, the gap between actual utilization in Israel and elsewhere is narrower than would appear, because all the beds, and often a considerable number of extra ones, are fully utilized. Even in the Mandatory period, occupancy in Jewish hospitals was about 90%; since the establishment of the State, with increasing demand and the mounting difficulties of keeping bed-availability abreast of population growth, it has reached about 100%.

It can be seen that all categories of beds are fully utilized, with the exception of beds for chest diseases, where occupancy fluctuates around 90%. This is a result of falling rates of Tb morbidity. The ownership of the hospital does not

TABLE 8
PERCENTAGE OF BED OCCUPANCY, BY CATEGORY OF BEDS AND OWNERSHIP,
1953, 1961, 1964

	1953	1961	1964
Category			
General ¹	86.6	96.2	96.2
Chest diseases	91.1	86.9	84.1
Mental diseases	96.3	110.1	105.5
Mental retardation	—	91.5	100.4
Chronic diseases	95.4	86.2	91.5
Rehabilitation	98.7	88.8	95.0
Ownership			
Government	93.5	100.2	96.9
Local Authorities	90.5	101.9	98.0
Kupat Holim	99.8	102.5	101.5
Hadassah	91.6	92.5	93.8
Malben	90.5	93.9	97.6
Mission Hospitals	45.3	55.5	65.7
Other Public Hospitals	82.7	95.0	97.5
Private Hospitals	90.2	98.8	106.5
Total	90.7	98.5	98.9

¹ Includes leprosy in 1961 and 1964

affect occupancy, except for Mission hospitals, where for many years occupancy was around 50%; in recent years, however, there has been a rise in the rate, in line with improvement in services and rising standards of medical care.

An average annual occupancy of nearly 100% means that often, and in some institutions permanently, beds beyond the established number are put up. These occupy passages in wards and, at times of particular congestion, in the corridors as well, causing considerable inconvenience to patients. It is worth stressing, however, that devoted attention and care given to patients offset these drawbacks, and no adverse effects have been observed, in spite of these difficult physical conditions.

In connection with the high bed-occupancy, mention should be made of the relatively short patient-stay in the general departments. In 1964, the average stay, including maternity, was 8.8 days, and it has persisted at around 9 days since then.

The shortest stay in the clinical departments was in gynaecology (4.4 days), probably because of the effect of abortion cases. Maternity averaged 4.9 days, and ear, nose and throat 3.4. Children in paediatric wards stayed an average of 10.4 days, whereas premature infants stayed in special units for 30.3. In the general medical wards, the average stay was 11.4 days and in the general surgical it was 10.3. The highest figures were in the oncological wards (17.8) and in urology (16.9).

The average stay in the long-term institution is calculated on the basis of discharged patients only, and is not affected, therefore, by the hard-core of patients, who stay for many years and sometimes for life. The average stay of patients discharged during 1964 was (figures in days): mental disease—180.5, mental retardation—1,722.8, chronic diseases (including geriatrics)—87.3, tuberculosis—99.5, rehabilitation—108.8, and leprosy—347.8.

These two factors, high occupancy and short stay, explain why, in spite of the low rate of beds, the number of admissions per 1,000 population does not reflect the difficulties in hospitalization. In 1964, there were 126 admissions per 1,000 population, which means that one in eight persons was admitted to hospital. Most of the admissions (118, including 26 maternity) were to general hospitals.

The average cost of a hospitalization day in Government general hospitals for the budgetary year 1965/66, including the consultative clinics, was estimated at IL.37.30, as against IL.17.60 for mental hospitals. These figures are higher for non-Government hospitals, the highest being at the Hadassah-Hebrew University hospital, where teaching and research requirements have a considerable impact on the cost. With the opening of a second medical school in Tel Aviv, similar increases in affiliated hospitals may be expected. Generally, however, dif-

ferences in average cost between hospitals are very little, owing to the equalization in the rate of medical and maintenance personnel per bed, the similar auxiliary medical services, and the attitude of the population, which is remarkably egalitarian in outlook. This is clearly demonstrated by comparing the cost of the hospitalization day in 1965/66 at Tel Hashomer hospital, the largest and one of the most advanced in Israel — IL.40.20, with IL.40.90 in Poriah hospital, a 170-bed peripheral hospital near Tiberias.

PAYING FOR HOSPITALIZATION

There is no uniform method of paying for hospitalization in Israel. The Sick Funds provide coverage for hospitalization to their membership. The Kupat Holim of the Histadrut provides about half the hospitalization requirement in its own institutions, while the remainder is supplied in Government, municipal and other public and community hospitals, which also take in the members of smaller Sick Funds, and only in a minor measure in private institutions. Families of insured persons have, in most cases, the same rights to hospitalization, but are sometimes entitled only to ambulatory services. If hospitalized, they have to reimburse the fees. All Sick Funds enjoy a special rate in Government hospitals, amounting to about 25% of the actual cost; in other public institutions, they pay a higher proportion.

Indigent patients are referred for hospitalization through the local Welfare Bureaux, and are admitted almost exclusively to Government hospitals, where the Welfare Bureaux pay a token fee. Where there are municipal hospitals, indigent residents may be hospitalized in them. This applies also to medically indigent patients; the Welfare Bureaux determine eligibility for this service.

Some other agencies pay for the hospitalization of certain categories of patients, for example, of immigrants for a period after arrival, or of immigrants who suffer from chronic diseases that have been noted on arrival. The care of such patients rests on Malben, which pays the fees in a general hospital or provides hospitalization in one of its own institutions. The Ministry of Defence is responsible by law for covering the cost of hospitalization of members of the Defence Forces and their families. Patients suffering from communicable diseases are hospitalized free of charge, subject to a written statement by the Health Officer that, for medical and/or social reasons, hospitalization is indicated.

Hospitalization of maternity and of work accident cases is free of charge for the patient, coverage being provided by National Insurance. The hospitals are reimbursed by the National Insurance Institute — 100% of the cost for work accident cases and about 75% of the cost for maternity cases.

Patients not within any one of the categories mentioned pay fees as the hospital orders. The amount is determined, according to a prescribed scale, by a means test. Urgent cases and casualties are accepted at all hospitals unconditionally. The Ministry of Health may accept responsibility, according to its rules and regulations, for the payment of part or all of the cost; in some cases this is borne in full by the patient.

Taking into consideration the extent of health insurance coverage and the approximate number of categories of patients entitled to free or reduced-cost hospitalization, it seems that only a small fraction of the population has to pay out-of-pocket for its hospitalization, in full or to a major extent.

It has been estimated that about 80% of the total cost of hospitalization in Israel is defrayed by indirect payments through Sick Funds, health and welfare agencies or taxation — and less than one-fifth directly by the patient, at the time of hospitalization.

All this refers to hospitalization in public or non-profit hospitals. The situation differs in regard to private hospitals (as profit-making hospitals are called in Israel). The number of private general hospitals is small, and they are used mainly by those who can afford the fees. In maternity cases, patients have to supplement the fees over and above the National Insurance grants. The same applies to members of Sick Funds for whom, in certain cases, the Sick Fund pays the fee acceptable in other public institutions, while the patient pays the rest.

The situation differs again in private hospitals which admit chronic, Tb, mental and mentally retarded patients. Most of these patients are of the less affluent social strata and, because of the length of hospitalization, are unable to pay for it. The institutions are, therefore, usually paid either by the Government or by local welfare authorities. But many long-term cases are also hospitalized in Government institutions, where there is either no fee, or only a token fee is collected to keep the family of the patient aware of its responsibility towards the hospitalized member.

PLANNING OF HOSPITAL SERVICES

A ten-year plan has been evolved in answer to expected hospitalization needs in the near future, taking into account forecasts for the total population and for its regional distribution. Details have already been authorized for the construction of general hospital facilities; schemes for psychiatric and chronic disease hospitalization are still under discussion. The plan aims at rationalizing existing services, and at achieving adequate regional distribution. It will be effected by building new hospitals and by extending existing ones.

It is intended to reach the following bed rates by 1974:

RATES AND EXPECTED RATES PER 1,000 POPULATION, ACCORDING TO CATEGORY OF BEDS,
BY 1974

Category	1964	1974
General	3.03	3.20
Tuberculosis	0.19	0.13
Mental Disease	2.30	2.50
Mental Retardation	0.65	0.65
Chronic Disease and Rehabilitation	0.81	1.10
Total	6.98	7.58

These rates are not considered optimal, but they represent what is feasible within the limits of the national economy.

To realize the plan means adding about 3,500 general beds and replacing about 1,500 existing unsuitable ones. It also entails the supplementation of many auxiliary medical services, apart from beds, to ensure better bed-utilization and maintain a few highly specialized centres.

It is hoped to continue to confine to an absolute minimum the number of patients requiring to go abroad for medical care. This makes flexible planning imperative, in order to keep abreast of constant medical advances.

It will be necessary, moreover, to build about 3,000 psychiatric beds and to replace about 2,500 existing ones. New concepts of psychiatric care are being incorporated into the programmes for the new hospitals. Some 1,850 beds will have to be added for rehabilitation and hospitalization of patients with chronic diseases, and some 600 beds of that type to replace those that are unsuitable.

The capital investment is at least IL.500 million. Most of this burden will fall on the Government, with the Histadrut's Kupat Holim in second place. It is hoped, however, that the municipalities will increase their share. Other public and private bodies will also contribute their share. The national lottery, the expectation is, will greatly increase its allocations to hospital building. It is liable to cost more than IL.100 million a year, at current cost rates, to maintain the additional beds.

SUPERVISION OF PHARMACEUTICALS

The Pharmaceutical Division of the Ministry of Health controls the quality of pharmaceuticals, locally produced as well as imported, supervises storage, sale and distribution of pharmaceuticals and of medical accessories, and controls establishments licensed to sell poisons for industrial and agricultural use.

The Division licenses the finished preparations, controls their quality and stability and the methods of producing them, according to Rules issued in November 1964, under which, also, all old preparations have to be submitted for re-registration. An advisory committee of physicians, toxicologists, pharmacologists and pharmacists is regularly consulted by the Division.

Pharmacists of District Health Offices take samples from stocks in factories, pharmacies and wholesale warehouses and send them to the Ministry's Institute for the Standardization and Control of Pharmaceuticals. There, all required tests are carried out, according to recognized pharmacopoeias or other accepted methods. When a sample is found to be below the legal standards, instructions are given by the Division to withdraw the defective batch from the market. If gross negligence is alleged, the matter is taken to court.

There are, in Israel, 28 pharmaceutical plants of different size. At the end of 1966, about 2,500 proprietary preparations (brand names) were being produced. The larger plants also do research on the synthesis of new drugs, on improving methods of production and on raising the stability of finished products. Some manufacturers have acquired know-how from well-known firms abroad, in synthesis as well as in manufacturing techniques. One factory specializes in producing sera and toxins for human use, another in preparing biological materials for veterinary use, and a third in extracting alkaloids from pharmaceutical herbs on a large scale. Most of the plants are equipped with analytical laboratories for quality control.

The local industry cannot produce all the medicines that Israel needs. A number of proprietary medicines have, therefore, to be imported. In 1966/67, 2.5 million dollars were spent on these imports.

The same measures of registration and control that are in force in regard to pharmaceuticals for human use have now been applied to veterinary medicines,

and this has been done in full cooperation with the Veterinary Division of the Ministry of Agriculture.

Use and Misuse of Medicines — As in many other countries, the amount of medicines used (or partly misused) in Israel is rising annually. Figures compiled by the Division for 1960-1965 show that consumption of certain barbiturates rose from 11.7 million tablets to 18.7 million, of tranquillizers from 33 million tablets to 52 million, and there has been a similar rise in the use of antibiotics, symptomatic drugs and antihistamines. This cannot altogether be explained by the growth of the population.

Pharmacies — All drug-dispensing services are subject to Government supervision. District pharmacists systematically inspect pharmacies, check on the storage of medicines, narcotics, and the observance of relevant legislation and instructions.

Under the law, as last amended, the owner of a pharmacy must be a pharmacist, holder of an academic diploma. Assistant pharmacists may operate only under the supervision of a licensed pharmacist.

The following drug-dispensing services were available to the population in 1965/66:

351 privately-owned pharmacies, of which 80% were run by a single qualified pharmacist; 76 pharmacies of Kupat Holim; 133 'dispensing rooms' and about 600 dispensaries — all belonging to Kupat Holim — in kibbutzim, drawing their supplies from a well-stocked and efficient central pharmaceuticals store; 24 pharmacies and 10 'dispensing rooms' of other Sick Funds and medical institutions. Some Sick Funds dispense medicines through private pharmacies; 33 pharmacies operated at hospitals.

Cosmetics — Supervision of the manufacture of cosmetics began in 1959 with the help of an expert advisory committee. By the end of 1966, there were 106 plants and laboratories, and about 1,900 products were licensed and registered. Quality is maintained by testing samples selected by district pharmacists and sent to the Institute for the Standardization and Control of Pharmaceuticals.

Dental and Medical Materials and Accessories — The Division also sees to the standards of certain dental and medical accessories, as the British or other pharmacopoeias lay them down. The accessories were supplied by 24 establishments in 1966/67.

Household Insecticides — Supervision of these started in 1962. In 1966, 57 plants or laboratories were licensed to produce about 300 proprietary products.

Radioactive Materials — The Environmental Sanitation Division of the Ministry, together with the Pharmaceutical Division, has embarked on regular inspection of institutions and industries using radioactive materials: this relates to safe-keeping, packing, shipment and handling in hospitals, in industry and in research laboratories. All concerned get informative circulars and report-sheets to fill out in respect of transport, use and safety of the materials.

Advisory Committees on the Licensing of Products Controlled by the Pharmaceutical Division — These are appointed by the Director-General of the Ministry, from time to time, to advise on the registration and licensing of products statutorily controlled. The members are qualified professional men, representing Government and public and scientific institutions. When necessary, the committees have recourse to a panel of experts and scientists in specialized fields.

They make their recommendations to the Director-General. An applicant may contest the grounds given by a committee for rejecting his product, but the final decision rests with the Director-General.

Pharmaceutical Economics — During the Mandatory regime, maximum price regulations were issued and they remained in force until the 1964 amendment of the Pharmacists' Ordinance, which empowers the Minister of Health to publish regulations fixing uniform prices in private pharmacies. The profit margin for pharmaceutical preparations is set at a quarter of the retail price (compared to a third abroad). The original packaging must display the retail price. Drugs prepared by a pharmacist in his dispensary carry a service charge on top of the costs of ingredients and packaging.

Export of Medicines, Cosmetics and other Medical Products — Israel's pharmaceutical industry, though young, has managed to develop a fair volume of export. The figures show a rise from about 1.6 million dollars in 1960 to 3.5 million dollars in 1963 as regards medicines, chemicals and medical supplies; in the same period, the value of cosmetics shipped rose from 48,000 dollars to 243,000 dollars.

Regulation of Dangerous Drugs (Narcotics) — In November 1962, Israel joined the International Convention for Narcotic Drugs, which prescribes rules for production, import and transmission, as well as for submission of reports on use. The Dangerous Drugs Ordinance of 1963 was consequently revised to conform; a few preparations were withdrawn from the list of dangerous drugs; many more were added. Up to 1960, the list had 42 items; 101 new synthetic preparations have since been catalogued. Regulation of dangerous drugs affects doctors' prescriptions, sales in pharmacies, consumption in hospitals, industrial production and imports.

Drug Addiction — Stringent supervision is demanded by the Dangerous Drugs Ordinance and the International Convention. But the problem of addiction is not one of regulation alone; it is a psychiatric and social issue. Nevertheless, the Division has the duty of watching out for any illegal use of addiction-producing drugs and of cooperating with other agencies in the campaign to wipe out what is a grave threat to society.

District pharmacists, who keep a record of all addicts in their districts, maintain surveillance over two categories: (a) those who get their supplies on doctor's prescription, and so are under effective supervision; (b) those who get them from illicit sources and thus come under Police control, including users of hashish and marijuana (*Cannabis indica*).

The number of addicts in Israel is estimated at three hundred, that is to say, assuming a population of 1,500,000 persons over 20 years of age, some 0.2 per thousand. This is apart from hashish smokers, whose numbers, according to the Police, may be as high as 3,000. With them, the estimated proportion of addicts in the adult population is 2.2 per thousand.

Approximately one-quarter of the registered addicts are members of the medical professions (doctors, pharmacists, nurses). The most popular narcotics are opium, morphia and pethidine; if supplies run short, pentobarbital serves as a substitute. Use of heroin is almost unknown. Pentobarbital, though not a narcotic under the law, is widely used, and addicts — or contraband suppliers — do not shrink from procuring it by theft, if need be.

The problem is world-wide in scope, and international organizations join forces in tackling it. A coordination committee of the World Health Organization and of the Economic and Social Council of the United Nations aids member countries in fighting the criminal traffic in narcotics. A delegation of experts from France, Canada, Ghana, India, Iran, Pakistan, Switzerland and Turkey visited Israel in October 1963 and discussed the problem with officers of the Ministry for Foreign Affairs and the Ministries of Health and Police.

Its geography makes Israel a route of transit for the smuggling of such narcotics as hashish and opium, which take the place of alcoholic beverages in Moslem countries. The Israel Police Force, therefore, is operative not only in controlling the consumption and sale of such drugs within the State but also in tracking down international gangs. It is in close contact with Interpol, but the authorities of neighbouring countries still decline to cooperate with it.

The contraband is smuggled both overland across the Negev and by sea in small craft. Unknown quantities find their way to addicts in Israel through Jewish middlemen who buy them from Bedouin.

Poppy-growing is banned in Israel by law, to preclude any attempt to extract opium for illegal purposes. Poppy seeds for culinary use are imported.

MUNICIPAL HEALTH SERVICES

MUNICIPAL HEALTH SERVICES OF JERUSALEM

Preventive health services in Jerusalem were operated by the Hadassah Medical Organization for nearly fifty years. In 1963, they were handed over to the municipality and the municipal Department of Public Health was founded. It operates in three fields of preventive medicine:

a) *Mother-and-Child Health Service*

This service is given in ten stations along lines approved by the Ministry of Health. Pregnant women are examined periodically, get post-natal care, and are instructed in child care. The health of infants and children up to the age of five is supervised by the physicians and nurses in the stations. There are also two special clinics, one for pregnant women suffering from heart diseases and one for the treatment of women suspected of imminent toxæmia of pregnancy.

b) *School Health Service*

This is given to all municipal kindergartens and to all elementary schools in the city, with the exception of the suburb of Kiryat Hayovel which, for teaching purposes, has remained a practice area of Hadassah.

c) *School Dental Health Services*

These services are available in all schools covered by the school health service. There are four stationary and three mobile clinics. The care is based on the principle of preventive treatment.

The municipal Department of Public Health also undertakes epidemiological field investigations.

MUNICIPAL HEALTH SERVICES OF TEL AVIV-YAFO

Tel Aviv was the first of the municipalities to develop public health services and provide hospitalization for its inhabitants. In its initial steps, it was guided

and supported by the Hadassah Medical Organization. The Hadassah municipal hospital in Balfour Street, founded in 1918, was taken over by the municipality in 1931. Until 1954, the municipal hospital and the other public health services in Tel Aviv constituted separate entities, each with an administration of its own and separate staffs and budgets. In 1956, a Director-General of all municipal health services was appointed, and their unification and coordination were effected; but, in 1965, the medical services were again divided into two sectors: hospital services and public health services.

The Hospital Services

The first independent Jewish hospital in Tel Aviv was the original Hadassah hospital in Balfour Street, which serves not only its own patients but also those from consultation clinics and regional clinics of the Department of Public Health, or those sent by private physicians in town. It maintains a first-aid clinic, operating theatres, X-ray departments for diagnosis and therapy, institutes for physiotherapy, heart-diseases and audiometry, biochemical, haematological, microbiological and isotope laboratories, and a blood-bank service.

In 1961, the municipality enlarged its hospital services by opening an additional general hospital, the Ichilov, with a nominal total of 305 beds, increased to 330, when, in 1963, an endocrinological and metabolic ward, and, in 1964, a cardiological department, were opened.

The hospital has very extensive laboratory services, a radiological institute, to which an angiography section was added in 1966, a department of pathology, and a blood-bank. In the same year, with the help of the Tel Aviv University Medical School, a unit for social medicine was formed. A nursing school is attached to the hospital.

The Municipal Maternity Hospital was founded in 1951. It has 150 beds for gynaecology and obstetrics, and a department for premature infants is attached. It also houses the municipal institute and clinic for fertility studies; in 1965, an out-patient department for gynaecology and obstetrics was added.

The consultation clinics of the municipal hospitals accept patients sent by private physicians, by Kupat Holim and by physicians of the municipal Department of Public Health, for consultation, examinations and treatment. Heads of departments in the hospital and their assistants act as consultants in the clinics.

Ya'al and Hamal Voluntary Organizations — Members of Ya'al, a voluntary, auxiliary organization with a membership of about 250, work at the Ichilov hospital, giving valuable aid to the nurses in feeding patients who cannot eat without help, distributing meals, visiting patients who have

no family, reading to patients in the ophthalmological department, arranging parties, and also assisting in the preparation of surgical dressings. They distribute books and periodicals to patients from a library that is itself the gift of their organization. A similar volunteer organization, Hamal, helps patients in the Hadassah hospital.

The Department of Public Health

The Department engages in both curative and preventive medicine.

Indigent patients, referred to the Department by district offices of the municipal Social Welfare Department, receive curative services free of charge or at a token fee. The services include visits to general practitioners and specialists, physiotherapy, dental care, laboratory tests and the supply of medicaments. Home-bound patients are visited by doctors and nurses. The Department arranges hospitalization for patients in municipal or Government hospitals, makes arrangements for convalescence, and provides appliances such as artificial limbs, hearing-aids, dentures and spectacles.

There are 7,000 active family files in the district clinics.

The Department has also developed a home-care service, which helps to rehabilitate the patient without the necessity to hospitalize him.

Preventive services, available to all residents of the city, irrespective of social status or membership in Sick Funds, serve pregnant women, give post-natal care, provide child care instruction and supervise the health of infants and children up to the age of five. The five day-nurseries admit infants who are underweight as a result of insufficient care.

School Health Services — For historical reasons, these are operated in Tel Aviv by the municipal Department of Education. However, when the municipal administration of Yafo was organized, the health services there for kindergartens and primary and secondary schools were incorporated into the organization of the municipal preventive health services of Tel Aviv-Yafo. In all of these schools and kindergartens, dental health services are given.

The Abrahams Home is maintained by the municipality jointly with the Alyn organization and managed by the Department of Public Health. It now functions as a combined day-hospital and school, accommodating 145 crippled children. Comprehensive curative treatment is provided and an out-patient consultation clinic is maintained. A swimming pool on the grounds is open during the summer months. Classes, held by teachers and instructors provided by the municipal Department of Education, and physical training continue without a summer break.

Over and above its part in the Home's budget, Alyn shares in the cost of maintaining the children, the summer camp, music and art lessons, transportation, and orthopaedic equipment.

The Municipal Home for the Disabled in Givat Hashelosha is administered and financed by the municipal Social Welfare Department. The Department of Public Health is responsible for providing medical care to its patients.

There are 450 beds — 300 geriatric and 150 chronic and nursing-care beds.

Advanced Training Programme. The hospitals of the municipality are attached to the Medical School of the University of Tel Aviv and to the Faculty for Postgraduate Continuing Medical Education. The senior medical staff take an active part in teaching.

The Department of Public Health is attached to the Medical School of the University of Tel Aviv.

MUNICIPAL HEALTH SERVICES OF HAIFA

The municipal hospital holds 337 beds, comprising departments for internal medicine, paediatrics, surgery, orthopaedics, urology, gynaecology and obstetrics, ophthalmology, neurology, chronic diseases and rehabilitation. It admits not only residents of Haifa but also patients residing outside the city, including many Arab patients.

The hospital has out-patient clinics for the several specialties, directed by the heads of its departments. There are institutes for X-ray diagnostics and therapy, physiotherapy, encephalography and pathology, and laboratories, including one for isotopes, as well as a laboratory for medical research. A residential school of nursing is attached to the hospital.

Graduates of the Hebrew University-Hadassah Medical School may do their internship year in the hospital, and it is recognized by the Scientific Board of the Israel Medical Association for providing specialist training.

Indigent patients receive services free of charge in sixteen general and special clinics. There is, also, a clinic for retarded children. Home-bound patients are visited by physicians and nurses. A municipal pharmacy dispenses drugs gratis or at a token charge. The municipal Health Department pays for hospitalization of indigent patients in the municipal or other hospitals. It provides dentures, orthopaedic appliances, hearing aids and eye-glasses. It makes arrangements for convalescence of needy patients and contributes to the cost of it.

The municipality maintains fifteen mother-and-child health centres in co-operation with the Ministry of Health. These services serve pregnant women, give post-natal care and supervise the health of infants and children up to the age of five.

PART 2

*Voluntary
Health Insurance*

KUPAT HOLIM SICK FUND —

The Health Insurance Programme of the General Federation of Labour

The initial history of Kupat Holim, founded in 1911, covers a period of uphill struggle by the Jewish worker to gain access to agricultural employment and adapt himself to manual labour. Adjustment to the new conditions was made difficult by the many endemic diseases which plagued the inhabitants of the country at that time. Malaria was considered an unavoidable scourge. Arduous toil, insufficient food and inadequate housing left the settlers easy victims of the ills of the Middle East: malaria, dysentery, trachoma and skin afflictions. Mortality was consequently high.

Medical care was altogether insufficient. The sick were left unattended in their miserable dwellings. The dangerously sick had to be transported to a hospital, sometimes a two days' journey over tortuous roads.

The time came when it was realised that it would be impossible to continue without organizing mutual aid in case of illness, and thus Kupat Holim (the Sick Fund) was founded in 1911. The first stage consisted of medical care provided by a team of a doctor and a nurse. Members considered it their personal duty to keep watch at the bedside of an ailing comrade at night, if necessary.

In contrast to the experience of other countries, health insurance was initiated by the efforts of the agricultural workers.

Today Kupat Holim provides direct and comprehensive services to its members, on the basis of their monthly insurance fees. Organized on a country-wide scale, it carries into practice the idea of mutual aid between towns and villages, struggling new communities and prosperous old-established ones. Financial centralization makes it possible to render services of similar standard to all members, irrespective of their earning capacity, and to maintain large central services, such as hospitals and special clinics, which serve all members, irrespective of their place of residence.

The Insured Population

Kupat Holim insures skilled and unskilled workers alike, agricultural labourers, members of cooperative villages, and salaried employees in every sector of the economy: industry, public works, transportation, public and private services.

The insured belong to the following groups:

All members of the Histadrut, comprising about 90% of workers and employees, members of workers' agricultural villages and cooperatives and organized Arab workers;

Members of the religious workers' organizations — Hapoel Hamizrahi and Poalei Agudat Israel; children and adolescents in the care of Youth Aliyah; recipients of public assistance payments;

Self-employed craftsmen and farmers who join individually as well as different other groups.

TABLE 1
MEMBERSHIP OF KUPAT HOLIM
(At the end of the year)

Year	Members	Members and Dependants
1911	150	739
1932	16,322	38,900
1948	152,000	328,000
1964	727,000	1,790,000
1965	772,000	1,874,000
1966	797,000	1,905,000

About 72.0 per cent of the total population and 77.6 per cent of the Jewish population are members.

Benefits and Services

Members and their families receive medical care in Kupat Holim's own institutions and are treated by its own personnel. In localities lacking other medical facilities, non-members are given medical aid in its clinics.

In case of illness or injury, Kupat Holim members are provided with comprehensive medical services. A separate scheme of cash benefits for industrial workers also exists, covering 40,000 insured. The coverage for services and benefits in kind is provided on a pre-payment basis, members paying monthly fees.

Preventive, curative and restorative medical services are extended to members and their dependants through Kupat Holim's network of out-patient clinics and home care programmes. Patients are hospitalized either in Kupat Holim hospitals, or in Government or other public hospitals.

Medical care includes treatment in out-patient clinics or at the patient's home, by general practitioners, specialists and nurses. In general, medical care is based mainly on the family-doctor system.



Kupat Holim Regional Specialist Clinic, Tel Aviv-Yafo



Haifa Central Kupat Holim Clinic under Construction



Kupat Holim Clinic in Nazareth



Rural Clinic near Jerusalem



Zefat

Kupat Holim Convalescent Homes

Nazareth



Other services to members are: consultant services; diagnostic and therapeutic services — physiotherapy, X-ray, laboratory tests, rehabilitation and occupational therapy; medicines and medical appliances; mother-and-child and school health services; treatment of work injuries; dental and orthodontic care; mental health and psychiatric care; industrial health services; health education; and convalescent care.

At the end of 1966, Kupat Holim operated the following service units:

Hospitals: seven general and two maternity hospitals with a total of 2,597 beds; five special hospitals and sanatoria with a total of 592 beds.

Clinics: three central clinics; 14 district clinics with specialist services; 60 sub-district clinics with specialist services; 207 sub-district clinics; 702 village clinics; three mental health clinics; nine occupational health units.

Auxiliary Institutes and Laboratories and other Institutions: a medical research institute at the Beilinson hospital; 44 X-ray institutes; 148 laboratories; 54 institutes for physiotherapy and rehabilitation; 233 pharmacies; 72 dental clinics; 180 mother-and-child health centres; and preventive health services in 230 schools.

The localities served by Kupat Holim are presented, in summary, in Table 2.

TABLE 2
LOCALITIES SERVED BY KUPAT HOLIM IN 1965

Towns and urban settlements		
Towns	26	
Urban settlements	43	
		69
Rural settlements		
Cooperative small holders' villages (moshavim)	353	
Collective settlements (kibbutzim)	223	
Jewish villages	62	
Non-Jewish villages	97	
Institutions, farmsteads, etc.	40	
		775
Total		844

The Negev: In the Negev, a thinly populated area with widely dispersed villages, 113 clinics are maintained. A staff of 400 medical workers in out-patient clinics extends medical care and health education to all the inhabitants.

Health Services for Immigrants: The Jewish Agency automatically insures all immigrants with one of the Sick Funds, mainly with Kupat Holim, for a period of three months immediately following their arrival. If, at the end of this period, the newcomer is still unemployed, he receives free medical aid for a further two months; after that, he pays only 60% of the regular member's dues for another three months. Furthermore, he is entitled to full medical care without any waiting or qualifying period.

Hospitals

The comprehensive medical services of Kupat Holim include short and long term hospitalization. It is the only Sick Fund that maintains its own hospital facilities.

Out-patient clinics for consultative ambulatory services and follow-up of patients discharged from hospital are established in seven out of the nine Kupat Holim general and maternity hospitals. Together, they constitute 56 clinical units. 3,689 medical and para-medical staff are employed in the 14 hospitals.

TABLE 3
KUPAT HOLIM HOSPITALS (at the end of 1965)

Category of Hospital	Number	Beds
General hospitals		
Central Negev hospital (Be'er Sheva)	1	420
Central Emek hospital (Afula)	1	267
Beilinson hospital (Petah Tiqwa)	1	750
Hasharon hospital (Petah Tiqwa)	1	255
Hacarmel hospital (Haifa)	1	100
Kaplan hospital (Rehovot)	1	283
Meir hospital (Kfar Saba)	1	240
	7	2,315
Maternity hospitals		
Rehovot	1	38
Kfar Saba	1	96
	2	134
Mental hospitals		
Geha hospital (Bnei Brak)	1	110
Shalvata hospital (Hod Hasharon)	1	120
Talbieh (Jerusalem)	1	195
	3	425
Hospitals for chronic diseases and rehabilitation		
Bet Loewenstein (Ra'anana)	1	107
Bet Rivka (Petah Tiqwa)	1	60
	2	167
All types of hospitals	14	3,041

Medical Care in Kupat Holim Clinics

Even small remote communities enjoy the services of a medical unit: a nurse living on the spot and a physician visiting regularly several times a week. In the bigger villages, with a larger population, every clinic provides care to 6,000 persons; these clinics are staffed by general practitioners, a paediatrician and part-time specialists (for ophthalmology oto-rhino-laryngology and minor surgery) and equipped with a laboratory for routine tests, and a pharmacy dispensing medicaments without additional payment.

Similar clinics exist in the towns, every clinic serving 6,000-8,000 persons.

The three principal cities, Tel Aviv, Jerusalem and Haifa, have central clinics. Each of these serves as a consultative centre for a population of about 100,000 insured. To these clinics patients are referred for the consultant services of specialists; they are equipped with laboratories, diagnostic and therapeutic X-ray institutes, and institutes for physiotherapy.

In 1959, the family-physician system was introduced in the majority of Kupat Holim clinics in towns and townships. While, under the previous system, the patient was treated by several different physicians, the insured and his dependants now receive care from a physician of their choice. The family physician sees the patients on his register in the clinic and also visits them at their homes in case of need. The number of patients registered with one doctor in a full-time position was reduced to 1,050-1,700, so that he should have sufficient time for each. Under this system the family-physician carries responsibility for the care of the insured member and his dependants and closer, personal contact between the patient and his treating physician is thus achieved.

The system operates at present in about 100 urban clinics, embracing 715,000 insured. As it began to function in agricultural workers' villages and other small places long before that, it can be said that the majority of the Kupat Holim membership is served by family-physicians.

Medical Research

The *Rogoff Medical Research Institute* at the Beilinson hospital was established in 1955 to provide research facilities for Kupat Holim physicians. In 1961, it was integrated with Tel Aviv University as the Department for Experimental Biology of the Faculty of Sciences.

It has laboratories for research in haematology, metabolism, endocrinology, paediatrics, physiology and pharmacology, experimental cancer chemotherapy, allergology, reproduction and fertility. The staff consists of 60 permanent research workers, research fellows working on grants from Israel and abroad, and a number of technical assistants.

Medical research, both applied and basic, is also carried out in the Emek, Hasharon and Negev hospitals of Kupat Holim.

The *Histadrut Institute of Occupational Health and Environmental Physiology*, affiliated to the Beilinson hospital's Cardio-Pulmonary Institute, is engaged in studies of the effect of hot climate on heart and kidney functions, and in research into specific aspects of the medical rehabilitation of heart patients.

Research in the Kaplan hospital, affiliated to the Hebrew University of Jerusalem, is done both in its auxiliary institutes and in the clinical departments.

Several community-based Kupat Holim physicians engage in research arising out of their everyday practice. Kupat Holim has established a fund for grants for the promotion of research among general practitioners.

The work of Kupat Holim's Research and Statistics Department is being expanded and diversified, gradually embracing all activities. The Department studies the utilization of medical care services and evaluates health education programmes. A statistical bulletin is published regularly.

Staff and Staff Training

As has been mentioned, medical care provided by Kupat Holim to its members is based on its own salaried staff, medical and para-medical. For that staff, courses are organized in cooperation with other medical institutions. The greater part of the present Kupat Holim medical manpower is recruited from among immigrants: over 1,000 physicians, 250 pharmacists and hundreds of laboratory technicians, nurses and administrative personnel were added between 1948 and 1964.

Participation of physicians in Tel Aviv's Medical School postgraduate courses is encouraged by special grants. A Staff Training Institute organizes seminars and symposia. Over 100 general practitioners completed the six weeks' courses in 1963, and about 1,000 took part in one-day seminars and symposia in Kupat Holim hospitals in 1964.

The Kaplan hospital, as said, is affiliated to the Hebrew University-Hadassah Medical School, and the Beilinson hospital to the Tel Aviv Medical School. Under a new scheme started in 1965, fifth-year students are given medical training in selected Kupat Holim out-patient clinics, chosen for the purpose.

Kupat Holim's Talbieh psychiatric hospital, founded in 1949, functions as a teaching centre for psychiatry. In the last two years, the clinical psychologists of the hospital have been sharing actively in teaching at the Hebrew University Department of Psychology. Psychiatric training for medical students, as well

as psychiatric specialization for social workers, is provided in Kupat Holim's central mental health clinic in Ramat Chen.

Kupat Holim conducts courses for laboratory technicians, physiotherapists and administrative staff. It operates nine nursing schools with courses for graduate and practical nurses; one half of Israel's graduate nurses are alumnae.

Medical studies and clinical research papers are published in the Kupat Holim quarterly magazine "Folia Medica", which has been appearing since 1941.

The staff in March 1967 comprised the following personnel: 2,685 physicians and dental surgeons, 4,266 nurses and auxiliaries, 125 dental assistants, 805 pharmacists, 819 laboratory workers and 5,625 administrative clerical, and technical employees — a total of 14,200.

Cooperation with other Health Agencies

Close cooperation exists between Kupat Holim and the Ministry of Health, Hadassah, Malben and the Army Medical Corps, and also between Kupat Holim and municipal authorities with regard to hospitalization. Any person residing in the vicinity of a Kupat Holim district hospital is entitled, in case of need, to emergency hospital care.

Kupat Holim is represented on the Minister of Health's coordinating committee and is an active partner in the formulation of health policy and long-range medical care planning.

Occupational Health Services

The beginnings of occupational health services in Kupat Holim date back to about 1945, when Kupat Holim opened the first Department of Industrial Medicine, attached to its Tel Aviv central clinic, and engaged, to start with, in visits to factories and in the organization of first-aid services at places of work. Later on, periodical health examinations were introduced for workers in contact with toxic substances.

After 1948, Kupat Holim set up Industrial Medical Departments, usually attached to its central, specialist clinics. On an experimental basis, in-plant service is provided by its physicians to a number of larger undertakings.

Services provided by Kupat Holim occupational health clinics consist of:

Pre-employment examinations;

Periodical health examinations of workers in dangerous trades;

Assessment of working-capacity, including rehabilitative placement of workers after accidents or disease;

Visits to factories to advise labour and management on health services needed, or to investigate individual cases as to a possible connection between work and disease, or in connection with problems of on-the-job rehabilitation;

Organization and supervision of first-aid services at places of work, including instruction in first-aid;

Participation in the health education of insured workers.

The staff consists of twenty-five industrial physicians and as many industrial nurses and, in addition, some auxiliary personnel throughout all the fifteen Kupat Holim districts. Excellent collaboration is maintained with other health agencies active in the field of occupational health: the Ministry of Labour's inspectorate, the Occupational Safety and Hygiene Institute, the National Insurance Institute, and the Ministry of Health.

Kupat Holim is the only organization providing facilities for the training of industrial nurses. Three in-service training courses have been arranged, of sixty lecture-hours each. About fifty nurses, including those working in factory medical departments, have availed themselves of this opportunity so far.

Several Kupat Holim industrial physicians have been sent abroad for post-graduate study. Locally, Kupat Holim is sharing actively in the work of the Society for Industrial Medicine by organizing seminars, visits to factories and scientific meetings.

As for research, a study on byssinosis has been going on for three years in the Tel Aviv area. The health of seamen in the Israel merchant navy has been investigated, and a number of follow-up studies on absenteeism and occupational diseases or rehabilitation have been conducted.

The lack of adequate special laboratory facilities, in clinical toxicology and environmental hygiene, is badly felt, although all the general supporting services of Kupat Holim, such as laboratories, X-ray institutes, and specialist advice, are at the disposal of industrial health personnel.

The Health Education Service

The health education programme addresses itself to two kinds of problems: a) mass health problems, such as the seasonal diseases or home accidents of children, and b) health problems of such specific groups as pregnant women, diabetics, heart patients or the obese.

For the mass projects, it was decided to use non-professionals as agents of health education.

Complete educational kits were designed for health education in gastroenteritis and respiratory diseases. They contain reference material for the lecturer, a popular lecture based on eleven pictures in the form of flip-charts of various sizes, and colour slides. The pictures can be used as the framework of the lectures by the non-professionals. Popular pamphlets for distribution, hints for the lecturer, and an evaluation sheet are also included in the kits. All the materials were tested in pilot studies.

The agents of health education were about 400 girl soldiers taking part in an adult education programme of teaching the illiterate, and 300 instructors specializing in training women, especially new immigrants, in home economics and citizenship. Sanitation officers of local councils took part in the summer programme on gastroenteritis, and leaders of old-age clubs were especially interested in the winter programme on respiratory diseases.

Close on one thousand people, all over the country, were thus briefed and equipped with educational kits and audio-visual aids, with which they returned to their respective communities, there integrating into their daily work the lectures for which they had been prepared. Some went from home to home giving individual instruction, while others organized neighbourhood groups in housing estates. Lectures were given in old-age clubs, schools and public halls, and, in one way or another, reached thousands of people in scores of communities.

The health problems of specific groups are, basically, approached in the same way, that is, by the preparation of complete educational kits tested in pilot projects. In the second group, however, the agents of education are physicians and nurses. After special coaching and briefing in the use of the material, they instruct their special interest groups in out-patient clinics, mother-and-child centres and hospitals.

Chronic Diseases and Rehabilitation

At the end of 1943, Kupat Holim bought three houses in a village some fifteen miles north of Tel Aviv and turned them into a small institution (18 beds) for the chronically sick. It wished to give patients in terminal stages of illness a place where they might end their days in quiet and dignity.

By the end of March 1944, the institution was fully occupied, and it was recognized that most of the patients in it were not in terminal stages of illness, but rather in need of long and intensive medical treatment, that they ought to have a chance to improve as far as they could and return home.

Over the next few years, the essential rehabilitation services were installed, and the institution took on the character of a hospital. After the end of the war, it was gradually enlarged to 43 beds for adults and 25 for children recuperating from polio.

As the hospital proved to be very useful, it was proposed to enlarge it further and to give it the single purpose of a rehabilitation centre. An evacuated hospital for lung diseases in Ra'anana became available. It was adapted to its new purpose, buildings were added and, in December 1958, the transfer to the reconditioned premises took place. After all children were transferred to the rehabilitation centre at the Assaf Harofe Government hospital in Zerifin, the entire hospital (now named the Loewenstein hospital — 107 beds) was used for the rehabilitation of adults exclusively.

The following description of the work done in the Loewenstein hospital relates to the end of 1965.

Applications for admission of patients are submitted to the medical superintendent. The application sets out all facts relevant to the patient's illness, his present state and the need for rehabilitation in hospital. If the medical superintendent is satisfied that the need exists, the patient is put on the waiting list.

New patients are admitted to a reception unit of 15 beds. Here the patient's illness and his present state, general and functional, are evaluated. At the end of the period of evaluation — usually from 3 to 4 days — a provisional plan of rehabilitation is decided upon.

The patient is now transferred to the ward on the ground floor of the main building (29 beds for hemiplegics) or to the ward on the second floor (44 beds for general rehabilitation). As soon as he can look after himself unaided, he is transferred to the third ward of 26 beds for intensive and comprehensive rehabilitation.

The hospital's diagnostic facilities include a laboratory for clinical and biochemical examinations; an X-ray unit, adapted to the needs of patients with disabilities; an electro-cardiograph and instruments for examinations by galvanic or faradic current; and an electro-myograph. Treatment facilities include a department of physiotherapy with 8 physiotherapists and a therapeutic warm-water pool; a department of occupational therapy with 5 therapists (the work done is mostly functional, but is also aimed at evaluation of the patient's work ability); a rehabilitation workshop for tin-work, which is principally for young men who are not satisfied with the usual occupational therapy, but serves the same purposes; speech therapy; and social work.

The staff consists of six full-time physicians working in three wards, beside the medical superintendent. There is one nurse to each two beds.

The hospital is recognized as a training institute in the specialty of physical medicine and rehabilitation.

Patients are accepted from the age of thirteen; there is no upper age limit. The only limit is the potential for rehabilitation.

In the year 1 April 1964 to 31 March 1965, 431 patients were admitted, 47.4% from their homes, 50.1% from general hospitals and 2.5% from private institutions. The same number of patients were discharged, 79.1% to their homes, 9.4% to other hospitals, and 3.2% to private institutions; 8.3% died. The average length of stay in hospital was 85 days; 34.4% of the patients were hemiplegics, 12.7% paraplegics or tetraplegics, 13.1% had fractures other than of the spinal column.

THE NATIONAL WORKERS' SICK FUND —

Sick Fund of the National Labour Federation

The National Workers' Sick Fund was founded in 1933 by the National Labour Federation. At that juncture, only members of the General Federation of Labour — the Histadrut — were eligible for the benefits of its Kupat Holim. As a consequence, members of the National Labour Federation, opposed to the political philosophy of the Histadrut and unwilling to affiliate themselves to it, were without organized medical aid. Therefore, the National Workers' Sick Fund was established, its policy being to accept every resident without regard to political or other affiliations.

One of its basic tenets was the free choice of physician. It was the first to grant this facility, which was later introduced by other health insurance programmes.

To enable the patient to get the care which he required in the manner of his choice, the Fund merged the work of the physician in the Fund's clinics with his work in private practice, leaving the patient the option of deciding where and by whom he would be treated.

In due course, the Fund developed branches all over the country — a total of 100 fully-equipped clinics. It maintains auxiliary facilities — laboratories, X-ray institutes, electro-physiotherapy centres, pharmacies and convalescent homes. It provides full medical care for 216,000 persons, including hospitalization at Government and other public hospitals. At the end of 1966, a staff of 1,100 was employed by the Fund.

The Disability Fund

This provides mutual assistance to members in cases of complete or partial disability caused by chronic diseases, where the Sick Fund as such does not cover the outlay, or if all of its resources for this category of patient have been exhausted.

Mutual aid takes the form of monetary assistance, consultations and guidance.

Industrial Medicine Section

The Industrial Medicine Section of the Fund operates in two fields:

- a) Direct industrial medicine services to workers, such as fitness examinations, evaluation of fitness in a particular job, periodic health examination of workers, diagnosis of occupational diseases, rehabilitation in and outside the plant of workers injured in traffic or work accidents, hospitalization for diagnostic purposes.
- b) Consultation in industrial medicine in plants all over the country.

THE PEOPLE'S SICK FUND — Kupat Holim Amamit

Kupat Holim Amamit, was launched in 1931, with a view to providing a health insurance scheme for members of the urban middle class and independent small farmers, as the services of Kupat Holim were at that time available only to hired urban and rural workers, members of the Histadrut as well as members of cooperative villages.

Kupat Holim Amamit, in 1965, had 10,951 insured members. These together with their dependants, constituted a population of 48,721 persons. There were 10,424 Jewish insured, constituting a population of 44,823 and 527 Arab insured, constituting a population of 3,898 persons.

In 1965, Kupat Holim Amamit had the following medical and non-medical personnel:

Salaried physicians (mostly part-time)	31
Physicians on panel for free choice by the insured member	192
Specialists on panel (partly receiving fee for service)	126
Graduate and practical nurses	42
Clerical staff and others	95
Dentists on special contract	25

All laboratories, pharmacies and X-ray institutes of the country are tied by special contracts.

Kupat Holim Amamit offers its members the following kinds of benefits:

- 1) Free choice of physician, hospital and pharmacy. This applies mainly to cities, where there is a large number of physicians.
- 2) In small communities, where no private physicians practise, a physician is appointed on full or partial salary, depending upon the number of insured members in that location.

- 3) Specialists are either salaried or receive a fee for service.

Under an agreement between the Kupat Holim Amamit and Kupat Holim of the Histadrut, members of the Fund which happens to be in a minority position in any given locality receive free medical treatment and drugs from the dispensary of the 'majority' Fund, at a charge to the 'minority' one. Hospitalization, X-ray examination and treatment by specialists are provided directly by the 'minority' Fund.

Kupat Holim Amamit does not operate dental clinics; it has, however, an agreement with private dentists, under which members receive treatment at reduced prices.

The policies of Kupat Holim Amamit are guided by the following principles:

- 1) Kupat Holim Amamit is a public enterprise — it is not affiliated to any party, class or movement; it is open to all.
- 2) Membership dues are not equal for rich and poor alike; the fee is progressive, with no ceiling, and is determined solely by the financial situation of the family. There is no increment for children, except for the first child. Fees include disability insurance, 18 months' hospitalization, and funeral expenses, in addition to all services.
- 3) The prevailing type of insurance is complete coverage, provided for 96% of the membership. It includes family doctor service—general practitioner and specialists at the clinics, at private surgeries and in the patient's home; 18 months' free hospitalization; nursing care; physiotherapy; X-ray examinations and radiotherapy; medicaments; recuperation at the Fund's own convalescent home and at other convalescent homes under contract with the Fund.

Dependent parents' insurance is available for a monthly fee and provides free medical care and other services at very reduced tariffs.

- 4) Every member of the Israel Medical Association may join the list of elective doctors. The physicians on this list are not paid a regular salary or a fee for service, or a capitation fee, but a percentage of the membership dues paid by the patients linked to them, and a percentage of the contribution of the employer. Under this arrangement, the share of the family physician is of course much higher than that of the specialist and consultant.

A special arrangement has been made in Jerusalem. There, the Fund is affiliated to the local branch of the Israel Medical Association, which distributes 70 per cent of the income of the Fund's branch among the physicians, general practitioners and specialists, according to the services rendered. The remaining

30 per cent are used for hospitalization, medicines, X-ray and administration. The physicians receive patients at their private surgeries, arrange a duty roster for Sabbaths, holidays and replacements, and provide laboratory and sometimes nursing services.

THE MACCABI SICK FUND — Kupat Holim Maccabi

The Fund was founded in 1940. Its programme is based on the principle of free choice of physicians, general practitioners as well as specialists, by the insured, and likewise of pharmacies, laboratories, X-ray facilities and the like. Any citizen of Israel may join the Fund. It has no political or party affiliations of any sort. It receives no aid or subsidy from any source, except annual allocations from the Ministry of Health and from municipalities. In December, 1967, the membership, including dependants, had passed the 155,000 mark.

In 1966 the Fund provided, free of additional charge, diagnostic and therapeutic services by the Fund's 553 physicians of every specialty, approximately 57 laboratories and X-ray institutes, 13 large physiotherapy institutes, hospitalization in all Government, municipal and other public hospitals, as well as every type of supplementary medical service which might have been required by the patient, including drugs and medicaments through any pharmacy.

Full medical care is provided for injured workers in cooperation with the National Insurance Institute.

The Fund administers its medical services through branches all over the country. A nursing service is at the disposal of all members.

THE GENERAL ZIONIST SICK FUND

This Fund was founded in 1936 by a group of leaders of the General Zionist Organization, in view of the fact that the Histadrut reserved the services of its Kupat Holim for members of the Histadrut exclusively. The new Fund, from the beginning, did not confine itself to serving any particular circle but was open for every resident, irrespective of his political opinions or affiliation. At the start, it functioned on a very narrow basis, but slowly the number of branches and of members rose and there are today 42 branches and 71,430 members. Two hundred physicians and 170 other staff are employed by the Fund.

The Fund renders comprehensive medical care to members, including consultation of general practitioners and specialists at its clinics and at the

private clinics of associated physicians; consultation at the clinics of Government or municipal hospitals; hospitalization in public hospitals; home visits by general practitioners or specialists, when the patient is bedridden; vaccinations; physiotherapy; laboratory tests; X-ray diagnostics and therapy; electrocardiography, oscillometry, metabolic examinations; nursing aid at clinics and at the patient's home; medicines; medical care to injured workers insured in the National Insurance Institute.

Members can get dental care, convalescent care, eyeglasses and orthopaedic appliances at reduced prices.

A member may choose any physician on the Fund's panel, to be seen either at the Fund's or the physician's clinic. At most branches, insured members prefer to attend the clinics, because there, without loss of time, they can get drugs, nursing care, physiotherapy and laboratory tests. Certain services can be given at the patient's home.

THE ASSAF SICK FUND

This was formed in 1962 by the consolidation of two Sick Funds that had been established by branches of the Israel Medical Association, in Tel Aviv in 1942 and in Haifa in 1950.

It is a non-political public institution open to all citizens and operating on the basis of free choice of physicians, service facilities and pharmacies. Members may select their specialist or general practitioner from the Fund's panel of almost 400 doctors, as well as the X-ray institute and pharmacy they wish.

The Fund supplies the following services to members: medical treatment at the physician's private surgery or at the patient's home, medicaments, laboratory and X-ray examinations, X-ray therapy, and electrotherapy. Hospitalization is given to members at the expense of the Fund in all Government and municipal hospitals: for any illness up to six months' hospitalization at the expense of the Sick Fund, and eighteen months' hospitalization at the expense of the Disability Fund. Convalescence and dental treatment are provided at reduced rates.

The Disability Fund affiliated to the Sick Fund provides medical care to members suffering from chronic diseases. This includes, as said, eighteen months' hospitalization for every illness over and above the six months chargeable to the Sick Fund itself, as well as radium and cobalt radiation.

The Sick Fund has thirty nine branches.

The number of insured persons was forty-two thousand at the end of 1966.

SICKNESS INSURANCE BY SHILOAH COMPANY

The Shiloah Company is a commercial undertaking, offering two kinds of insurance schemes for sickness and accident: one covering medical expenses, the other covering loss of income due to sickness or accident. The latter type follows the familiar lines of personal accident insurance. Medical expenses covered are the cost of hospitalization, including all extras and surgical fees, with special arrangements for convalescence. The insurance includes a collective life insurance in case of death. As a rule, in addition to hospitalization coverage, X-ray, laboratory, electro-cardiography and other special treatments and examinations are included in the insurance and reimbursed to the extent of 75% of the costs. Current medical treatment, at a fixed repayment rate, can also be insured. The monthly premium, covering cost of hospitalization in Government, municipal and private hospitals, with 75% reimbursement for special treatment, amounted to IL.18.65 for a single person, and IL.43.75 for a couple with two children in 1965. Persons aged 45-75 are accepted at increased rates. Premiums are adjusted from time to time to rising costs of hospitalization and other medical charges. In this country, as well as in many others, the rise in costs of medical services lately evidences a tendency to outstrip the rise in the general price level, and this will in future present a serious problem to sickness insurance of every kind.

The relatively small number of subscribers to Shiloah — by now some 15,000 — allows for personal contact, which at times proves a decisive factor in treatment.

PART 3

*Voluntary Health Agencies
and Associations*

THE HADASSAH MEDICAL ORGANIZATION

The Hadassah-Hebrew University Medical Centre, which stands high above the ancient monastery village of Ein Kerem on the outskirts of Jerusalem, is part of a pattern woven into the medical life of Israel during Hadassah's five decades of service to the people of Israel.

Its story can be told as part of the history of Palestine since 1912, linked to the development of an American voluntary medical foundation operating here. In that year, an American Jewess, Henrietta Szold — social worker, educator, and humanitarian — succeeded in convincing a small study group of Jewish women that a practical mission was beckoning to them: the despatch of medical aid to Palestine, where hunger and disease prevailed. They accepted the challenge and in 1913 sent out two American-trained nurses to set up a district medical service among the Jewish, Moslem and Christian inhabitants of the Old City of Jerusalem.

In 1918, the American Zionist Medical Unit arrived in Palestine and commenced work in the buildings of the Rothschild hospital, which had been founded in Jerusalem in 1854. Its forty-four members — physicians, graduate nurses, sanitary engineers and dentists — brought with them vital medical help to an underdeveloped territory plagued with poverty and sickness. They were the envoys of Hadassah, the Women's Zionist Organization of America, a voluntary group, which at that time had over 5,500 members. Ultimately it expanded into a nation-wide movement of over 300,000 members with chapters throughout the United States, dedicated to fulfilling the motto: 'The healing of My people' (Jeremiah 8, 22).

The Unit was the precursor of the Hadassah Medical Organization in Israel. From its modest beginnings there emerged a network of diagnostic, preventive and public health services, and of teaching and research institutions, which have influenced the development of Israel medicine as a whole. In 1918-19, modern hospitals were opened in Tiberias, Zefat and Yafo, in Haifa and Jerusalem. Most of these have since been handed over to the Government and local authorities, enabling Hadassah to enter new fields of endeavour.

The Henrietta Szold-Hadassah Nursing School was opened in 1919 in Jerusalem. It was the first rung of the ladder of teaching that would train local personnel who were familiar with local conditions and, as such, capable of laying the foundation of permanent medical services.

Public health work has been an integral part of Hadassah's programme from the very start. The first two nurses in Jerusalem inaugurated a welfare station for maternal and child care and the treatment of trachoma, and they soon learnt that their struggle was as much against ignorance as against diseases.

Mother-and-child care stations were established throughout the country, and school hygiene, playgrounds and luncheon programmes started in Jerusalem.

The Rothschild-Hadassah hospital moved from the heart of Jerusalem in 1939 to the new Medical Centre on Mount Scopus. In the same year, post-graduate studies in medicine began in a joint undertaking with the Hebrew University, a partnership that continues to this day. Hadassah became the University hospital.

During the fighting of 1948, enemy forces gained control of the road leading to Mount Scopus. The Centre had to be evacuated after a brutal attack on a medical convoy, in which nearly eighty members of the Hadassah and University staffs lost their lives. Despite this disastrous blow, the Hebrew University-Hadassah Medical School was established a year later in the New City and undergraduate medical training started. Schools for dentistry and pharmacy were founded in 1953. At the peak of mass immigration in 1952, Hadassah established a Family and Community Health Centre at Kiryat Hayovel, a newcomers' suburb of Jerusalem. This applied the theory that the health of the individual is bound up with that of his family and his community and is influenced by physical, emotional and social conditions; the family, therefore, is the natural unit of health care.

For thirteen years after the withdrawal from Mount Scopus, Hadassah's hospitals were spread out in antiquated buildings in different parts of Jerusalem. The great influx of immigrants made it necessary to develop medical services in accordance with the needs of a fast-growing and heterogeneous population. It was an immense task but, though it laboured under restrictive physical conditions, Hadassah succeeded in enlarging the scope of its work in diagnostic and curative medicine, in teaching and research.

A major medical teaching and research organization could not, however, continue in this way and, in 1956, construction began on the new site at Ein Kerem. On 6 June 1961, the Hadassah Medical Organization moved to its new home, designed by Joseph Neufeld of New York, a complex of buildings on a plateau cut out of the Judaeen Hills, within sight of Jerusalem and alongside the highways to the plain and the sea.

It includes the Rothschild-Hadassah University hospital, a teaching hospital with 28 departments in medicine and surgery; the Hebrew University-Hadassah Medical School; the Hebrew University-Hadassah School of Dentistry, founded by Alpha Omega of the United States; the Henrietta Szold-Hadassah School of Nursing and residences for graduate and student nurses; and the Rosensohn Outpatient Clinics, with an annual capacity of 200,000.

The hospital has nearly 600 beds (with the possibility of expansion to 750), in radial and 'long' units. The central radial unit is an eleven-storey structure,

six floors of which house the 'acute' departments, such as surgery and orthopaedics, where patients are mainly confined to the bed or ward area. This provides for a high concentration of patient services. Two four-bed rooms make up a self-contained unit with its own nursing substation. The main nursing station is at a central point in the radial-shaped department. The purpose of this design is to cut the distance between nurse and bed to an absolute minimum and facilitate improved patient care.

In the 'long unit' — adjoining the radial section on each floor — are the 'non-acute' departments such as psychiatry, ear, nose and throat and paediatrics, which usually have a high proportion of ambulatory cases. Here, wide corridors are equipped with tables and chairs on either side of the wards.

In the medical records department 500,000 personal medical files, some dating back thirty years, are controlled by a master-index which facilitates ready access for clinical and research purposes.

In the Adolf and Felicia Leon Mother-and-Child Pavilion, alongside the hospital, mothers occupy units consisting of two four-bed rooms on either side of an eight-crib nursery. The mother is near her infant, but without disturbance, and the proximity reduces the risk of cross-infection common in large nurseries at a distance from the ward.

In the Rosensohn Outpatient Clinics, consultation, treatment and rehabilitation facilities are provided and the nearness of the hospital allows physicians to follow the progress of the individual both as outpatient and if admitted to a ward. If a patient has to be hospitalized, all the preparations for treatment or operation, such as X-ray and laboratory tests, are made in advance in the clinic, so that the stay in hospital is shortened. Non-insured patients pay for clinic visits according to their means; for the very poor, about half of those treated, the fee is nominal.

Apart from a professional staff of some 1,500 (doctors, nurses, technicians, administrative personnel), the Hadassah Medical Organization has the benefit of voluntary services given by a Women's Hospital Auxiliary (Ya'al) that has 400 members.

Over a thousand graduate nurses have already been trained in Hadassah's School of Nursing. As well as undergraduate training, the School offers post-graduate courses in family health nursing, operating theatre techniques, midwifery and nursing administration. A hundred and fifty students were in residence in 1966, including twenty-one undergraduate and post-graduate students from Africa.

In 1955, together with other medical institutions in Israel, the Medical School established a Division of Postgraduate Studies, to provide lectures and symposia for general practitioners and specialists. As 80% of Israel's doctors

are of diverse origin with a variety of medical traditions, it was thought well to equalise the different levels by supplementary training of the immigrant physicians. This brought the Medical School into partnership with Kupat Holim and led to the establishment of the Institute of Postgraduate Training in 1962.

Hadassah scientists were one of the groups to isolate the trachoma virus, and field trials are now in progress in Africa with an anti-trachoma vaccine which they have developed.

Inter-continental projects for which Hadassah may claim credit include a study of anaemias of pregnancy with Rangoon University; of onchocerciasis with Britain and Liberia; of detachment of the retina with Tanzania, Liberia and the United States; of the prevention of oral pathology with the National Institute of Dental Research in the United States; of electro-myography in lepra with India; and of growth and development with the International Children's Center in Paris.

In 1963, a class of fifteen nursing students — thirteen from Malawi and two from Liberia — commenced a three years' course, prepared in English and geared to their respective needs, at the Henrietta Szold-Hadassah School of Nursing in Jerusalem. After three years of intensive study, they qualified for the diploma of Registered Nurse and returned home to play a vital role in the development of their countries' medical services.

The Student Health Service of the Hebrew University and the Hadassah Medical Organization

In 1950, the Hebrew University authorities felt that the various Sick Funds in existence — highly developed though they were — did not provide adequate services to students and decided to set up a special service.

The main reasons which led to the decision were as follows:

- a) The high pressure of work in the Kupat Holim clinics, causing long lines and endless waiting, as well as time-consuming travelling to and from;
- b) Medical treatment to a particular age and occupational group has long been the aim of most social health services in the world;
- c) Specialization in student health is likely to contribute greatly to the practical knowledge of and insight into the health problems of this particular group, as well as their social and psychological problems;
- d) The need for a first-aid station within reach of lecture halls and other places of study, bearing in mind that much of the scientific work is done in laboratories.

The Health Services include:

1) A special students' clinic with five rooms, a large waiting-room and conveniences. The personnel consists of two physicians, four nurses, a social worker and a secretary.

The clinic is open daily continuously from 8 a.m. until 8 p.m. The physicians are in attendance daily from 8.30 a.m. until 3 p.m. At other times of the day (as well as on Sabbath and holidays), there is a rota of physicians on duty in town, so that the student can have medical attention at any time of day or night.

2) Treatment and consultation by specialists of Hadassah at the out-patient clinics of the Hadassah-University hospital at Ein Kerem.

3) Laboratory tests.

4) Home visits to students at any hour of day and night.

5) Routine dental treatment free of charge; for more complicated treatment (orthodontics), the student pays only for the materials used.

6) Free hospitalization in the Hadassah University Hospital.

7) Medicines prescribed, at a nominal charge of 25 agorot (8 cents) for each prescription.

8) Loans (for convalescence and the like).

9) Recommendations for light work to be given to students whose health is not up to the mark.

10) X-ray examination of the chest at the beginning of the academic year for all students; tuberculin tests for those studying medicine (by arrangement with the Rokach-Centre for the Prevention of Lung Diseases).

11) Sanitary inspection of student restaurants, and examination of the caloric and nutritional value of the meals served.

12) Cooperation with the Students' Organization in insuring the students with a commercial insurance company to compensate sick students for loss of income from work. (The majority of students earn their living by working).

13) General first-aid station for the University.

The Service is maintained by the Hadassah Medical Organization and the University in equal shares and is run by representatives of the University, Hadassah, the Medical Faculty and the Students' Organization.

MALBEN

Malben (the initials of the Hebrew words "Mosdot Letipul Be'olim Nechshalim" — institutions for the care of handicapped immigrants), is a voluntary agency, an arm of the American Joint Distribution Committee in Israel.

Malben-Joint started its activities in Israel at the end of 1949. Its funds are derived chiefly from the Jewish community of North America through the United Jewish Appeal.

Its fields of operation were the care of tuberculous patients, the chronically ill, the aged, handicapped children and youth, and vocational and economic rehabilitation. For this purpose it developed its own services of direct care to new immigrants, with the aim of easing their integration. It also assists the Ministries of Health and Social Welfare, as well as the local authorities, to meet the needs arising in the public health and welfare fields, with the main goal of promoting rehabilitation programmes. Since its inception, Malben-Joint has spent \$150,000,000 for the development of services, providing individual care for more than 75,000 handicapped and aged immigrants.

At present, Malben provides care for 4,000 chronically ill and aged immigrants in its own two hospitals and its institutions for healthy and infirm aged, as well as for those requiring nursing care. It maintains sheltered workshops for a group of blind and other physically handicapped persons.

Care of the Chronically Ill

Malben was instrumental in introducing in this country modern methods of care for the chronically ill, such as assessment of individual needs, care towards rehabilitation, provision of care on a continuous rather than a sporadic basis, introduction of follow-up services with periodic re-evaluation of needs. The following direct services are available to immigrant patients:

Long term hospital care: diagnostic and rehabilitation facilities for 200 patients, among them the rehabilitation hospital (100 beds) for severely disabled patients in Machne Israel with a programme for medical, social and vocational assessment, physical rehabilitation and pre-vocational training in special sheltered workshops; a hospital for chronic diseases at Pardess Katz (100 beds):

Out-patient care: in two hospital clinics as well as in ten clinics located in homes for the aged;

Home-care programme: attached to one of the hospitals, for 30 patients;

Day-care programme: in one of the hospitals, for 20 patients;

Medical appliances: appliances of various types are given to patients under Malben care, including prostheses, crutches, hearing aids, wheelchairs and motor-cars;

Nursing care and care for the infirm: in special units within homes for the aged — a total of 1,100 beds, including 95 beds for blind aged;

Convalescent care: provided for certain groups of patients, primarily after surgery, in rest homes;

Dental care: Malben established special services for dental care and rehabilitation for chronic patients in its hospitals and aged residents in its institutions, as well as for new immigrants living independently, who are eligible for Malben's care (up to 18 months from the date of their immigration). All Malben institutions have dental clinics and there is also a central clinic with a laboratory for prostheses in Pardess Katz.

In recent years Malben has been enlarging its activities in this field by assisting the Government and local authorities in developing hospital services for the chronically ill, within general hospitals. 200 new beds were opened in five hospitals, three of them in Government hospitals and two in municipal ones. Malben's own hospital services are being progressively integrated into community or governmental programmes. This new policy will permit the admission of patients with chronic diseases from all groups of the population, irrespective of the date of their arrival.

Malben's assistance to the Government and local authorities was in the form of grants for construction and equipment as well as for maintenance over three to five years. Wherever possible, Malben's trained staff was put in charge of the new services.

Care of the Aged

Malben provides direct aid to aged and indigent newcomers — men of 65 years and over at the time of arrival, and women of 60 and over. They are eligible to apply for care for a period of five years from the date of immigration, and 15,000 aged have already benefitted from Malben's services. New buildings were erected, or old ones adjusted, to provide shelter for them. The network of established services includes 3,130 beds in 12 homes.

Until 1958, Malben's policy was to admit to its institutions primarily healthy aged immigrants. Since then, the emphasis has been placed upon keeping the healthy aged among the new immigrants in the community as long as possible, and to admit for institutional care only those immigrants who require personal help and special medical attention.

The services now offered by Malben to the aged are:

Institutional care: for infirm aged, for those requiring nursing care, for healthy aged who for social reasons are unable to live independent lives. Within the institutions, the residents are kept mentally and physically alert by means of recreational and occupational programmes with specially developed workshops (16) for sewing, weaving, embroidery, mosaic, and the like.

Day care: within homes for the aged, for persons arriving in the morning and staying till the late afternoon, to return to their families.

Medical care: the medical services developed in homes for the aged are primarily preventive and include geriatric clinics, dental care, initial and periodical examinations for early detection of diseases such as cancer, diabetes, glaucoma, mental disorders. In addition, special hospital facilities were developed for treatment of the aged with chronic diseases and mental disorders.

Extra-mural care: Assistance in housing, home-making and house-keeping services and foster-home services, according to individual requirements.

Malben has sponsored the development of recreational, cultural and occupational activities for the aged, helping the local authorities to open 40 clubs.

Malben is a partner in a fund established jointly with the Jewish Agency, the Ministry of Social Welfare and local councils, for giving social assistance grants to aged people not eligible for National Insurance benefits.

Recently, it started to assist local communities in developing their own institutional care. Among the first to benefit is Be'er Sheva, where a home for 100 aged is under construction; 70 of its beds will be for infirm aged and those requiring nursing care. Tel Aviv received from Malben a 400-bed fully equipped institution for aged immigrants at Givat Hashlosha.

Special Groups of Handicapped

Malben is cooperating with the Ministries of Social Welfare and Health and with voluntary agencies in the care of the mentally retarded, blind, deaf, cerebral palsied, and children with orthopaedic handicaps. Together with the Ministry of Social Welfare and the Jewish Agency, it launched a survey of mentally retarded children up to 18 years of age with an IQ of 50 or below. The survey, done by the Henrietta Szold Institute for Child and Youth Welfare, was the basis for further planning of services for this group of handicapped children. With the help of Malben, the Ministry of Social Welfare recently opened the first assessment centre for mentally retarded children, as an out-patient facility in the Tel Hashomer general hospital. It also assisted the Ministry to establish



Occupational Therapy at ALYN Hospital for Handicapped Children in Jerusalem



Children's Rehabilitation Centre at Assaf Harofeh Government Hospital, Zrifin





Malben Old Age Homes





*Activity Programmes
at Malben Old Age Homes*





Israel Medical Association — Home for Retired Physicians, Haifa



Plasma Fractionation Plant, Magen David Adom, Yaffo



Rehabilitation of Mental Patients — Kfar Sha'ul Work Village





Vocational Courses in Psychiatric Rehabilitation, Nes Ziona Rehabilitation Hospital





WIZO Baby Home in Jerusalem

approximately 400 new beds for mentally retarded children (of the lowest group) requiring more nursing care.

At the beginning of 1961, it developed a demonstration apprenticeship scheme for the vocational and social rehabilitation of 60 mentally retarded in Jerusalem, which has since been taken over by the municipality. It developed a demonstration programme for the assessment and care of adolescents and young adults with cerebral palsy within one of its rehabilitation hospitals. In addition, it is assisting the Ministry of Health in operating the assessment centre for children with cerebral palsy at the Assaf Harofe general hospital. Malben has also assisted the Ministry of Health in developing a special home for the care of autistic children.

Malben has promoted the work of various voluntary organizations, dealing with special groups of handicapped, by seconding professional staff and assisting in professional guidance.

Psychiatric Services

A special trust fund was established by Malben, jointly with the Ministry of Health, for the development of psychiatric services. More than IL.6 million were allocated for this purpose, of which two-thirds were contributed by Malben. Through the fund, 1,160 new beds for the mentally ill were made available, more than half in open facilities.

Seventy five beds were installed for mental patients in two general hospitals; two out-patient clinics constructed and three regional mental clinics built or enlarged.

An extensive training programme provides scholarships for young physicians, social workers, psychologists and nurses. Forty persons in all benefitted from the training, including 23 physicians who in this way were attracted to the field of psychiatry.

Another fund was established to assist in the rehabilitation of patients following their discharge from hospital. Grants are made for housing, clothing, vocational training and economic rehabilitation.

Other Programmes

Malben contributed substantially to the Ministry of Health and other agencies to assist them to increase the bed capacity in their institutions. It established its own 720 beds for tuberculous patients, including a chest hospital in Be'er Yaacov, a special rehabilitation centre (120 beds), and a 100-bed unit for tuberculous aged patients. It was one of the initiators of the co-

ordinated programme for the control of tuberculosis, under the aegis of the Ministry of Health. All agencies dealing with tuberculosis participated in this programme, and a network of chest clinics was developed.

The Ministry of Health is now solely responsible for the programme, and Malben's hospital for tuberculous patients was transferred to it. Malben, however, continues to take part in a special rehabilitation fund for tuberculous and chronically ill patients, established by the Ministry.

Malben set up sheltered workshops for the handicapped and also provided constructive loans for the severely handicapped with large families to enable them to develop independent businesses of their own. More than 10,000 people have been thus aided already.

Malben is participating, together with the Ministry of Health, Kupat Holim and the Hadassah Medical Organization, in the maintenance of the School for Occupational Therapists.

MAGEN DAVID ADOM — The Red Shield of David

Magen David Adom was established in 1930 to provide first aid, transportation of the sick and wounded, and practical first-aid training. The Society was granted official status by virtue of the Magen David Adom Law of 1950, passed in conformity with the Geneva Conventions and the Charter of the League of Red Cross Societies. It invests Magen David Adom with rights and duties similar to those of national Red Cross Societies elsewhere.

Magen David Adom is non-political and non-sectarian. It functions primarily with the help of 6,000 volunteers, organized in 62 branches. The number of persons who received first-aid in its stations in 1964/5 was 98,005. It operates a fleet of 218 ambulances, constituting the only public ambulance service in Israel.

M.D.A. ambulances serve accident cases free of charge, and also carry pregnant women and sick persons to hospital. In 1960, Magen David Adom, in cooperation with other agencies, conceived a scheme for the subsidization of the conveyance of persons of limited means, living far away from a hospital. The National Insurance Institute covers about 75% of the cost of the transportation of pregnant women to the hospital for confinement, if the distance between the home and the nearest hospital exceeds 15 kilometres.

It provides practical first-aid training all over the country. In 1964/5, 113 such courses were given, attended by over 58,000 persons. Particular attention is given to mouth-to-mouth resuscitation.

A blood transfusion service is provided and a main blood bank maintained in Tel Aviv-Yafo, with five subsidiary banks in Haifa, Jerusalem, Tiberias, Be'er Sheva and Zefat. There are also banks in Eilat, Ashqelon and Hadera, maintained in cooperation with the hospitals of the Ministry of Health, and another in Be'er Sheva, in cooperation with Kupat Holim. In 1955, Magen David Adom established a blood fractionation and plasma-drying institute in Yafo which, together with the blood banks, supplied 53,000 units of blood in 1966.

A voluntary Blood Donors' Association has been in existence for the past thirty years. A 'group insurance scheme' for the supply of all the blood needed for transfusions embraces 350,000 persons; each group is pledged to require 5% of its membership to provide blood to meet the transfusion needs of all the insured.

Magen David Adom acts as an auxiliary service to the Medical Corps of the Israel Defence Forces, as is required by the Geneva Conventions. It also acts as the Medical Service of the Israel civil defence organization and is responsible for establishing emergency casualty stations.

Israel is a signatory to the Geneva Conventions, and its obligations with regard to prisoners-of-war are carried out by Magen David Adom.

Although not yet formally affiliated to the International Red Cross, owing to the difficulty which international recognition of its symbol appears to present, Magen David Adom has always upheld the tradition of extending aid to other countries. In recent years, it sent its modest measure of relief to Argentina, Brazil, Burma, Canada, Chile, Colombia, France, India, Iran, Italy, Japan, Laos, Malgach, Nepal, Somalia, Thailand, Turkey and Yugoslavia, when natural disasters occurred.

The budget of Magen David Adom for 1966/7 exceeded IL5,000,000. Of this sum, 25 per cent came from societies of friends abroad, chiefly in the form of ambulances, equipment and grants for new buildings. The rest was raised in Israel from membership fees, from the proceeds of an annual lottery, and from grants by the Government and by local authorities.

THE ISRAEL ANTI-TUBERCULOSIS LEAGUE

The Anti-Tuberculosis League was founded in 1924 by a group of physicians and public-spirited laymen as a voluntary agency. In 1930, with the help of overseas donors, the 'Timnea' preventorium for children was opened on Mount Carmel, later to become a hospital for tuberculous children. In 1933, the sanatorium in Mekor Hayim in Jerusalem was opened; by 1947, after gradual growth, it contained 177 beds. In the same year, six dispensaries were established.

During the War of Independence, it was found necessary, for security reasons, to move the patients from Mekor Hayim to temporary quarters in Yafa, until they were transferred to the Neve-On hospital, which had been under construction since 1947.

After the establishment of the State, and following the inflow of sick immigrants, the campaign against tuberculosis was joined by the Ministry of Health, Malben and Kupat Holim. New chest clinics were opened, hospitals and tuberculosis departments were set up in existing hospitals. A coordination programme was formulated to ensure the most efficient use of the facilities and to prevent duplication of effort. Accordingly, Timnea was closed in 1954 and a new central hospital, Eitanim, opened in the Judaeen Hills. Eventually Eitanim, too, was closed down, since the incidence of tuberculosis among children fell spectacularly.

The Neve-On hospital in Bnei Brak was taken over by the Government in 1954, and, as from 1956, has been used to care for mentally disturbed tuberculous patients.

There is now a chain of 18 chest clinics, 12 of them with their own buildings put up by the League and fully equipped.

The clinics have extended their scope and function today as consultation centres for chest diseases.

The League operates three clinics of its own, and shares with the Ministry of Health the financing and administration of others. Among its foremost tasks is education of the public. In the realm of tuberculosis control, it provides economic support for patients and their families, while they receive rehabilitative care. It is in permanent contact with the International Union against Tuberculosis, of which it is a member.

THE ISRAEL CANCER ASSOCIATION

The Association was founded in 1952. Its activities are the following:

Promotion and subsidization of centres for the early detection of cancer. In 1964 there were 18 such centres; the medical work in the centres is done on a voluntary basis. A laboratory has been established in the Tel Hashomer Government hospital for early detection of cancer in the respiratory and digestive systems. A grant by the Association has enabled the Ichilov municipal hospital in Tel Aviv to establish a laboratory for early detection of cancer with the aid of isotopes.

Home-care programmes, initiated by the Donolo and Tel Hashomer hospitals: teams consisting of physician, nurse, physiotherapist and social

worker visit the homes of cancer patients and provide medical and social assistance.

Social assistance: one of the first activities in each new branch of the Association is the establishment of a 'mutual assistance committee', whose task it is to locate and aid cancer patients in the area. The members of the committees are in close contact with the local hospitals and social welfare bureaux. The Association's help is not meant as a substitute for what must be given by other agencies, but rather as a supplement. In Tel Aviv, the Association's support has enabled the homemaker service Matav to provide service to dozens of families with cancer patients, free of charge or at a reduced fee.

As for *rehabilitation*, speech lessons, in groups as well as on an individual basis, are given by trained instructors to patients after laryngectomy in Tel Aviv and Jerusalem.

Research grants are each year given to investigators in local hospitals and research institutes.

Cancer registry: the Association cooperates in the maintenance of the cancer registry in the Ministry of Health.

Education of the public: the Association's main educational activity consists in an annual fund raising drive, which also serves as an educational campaign. The media used include radio programmes, newspaper articles, lectures and films. Thanks to the cooperation of the Army and the Police, the broadcasting service, newspaper editors and correspondents, local authorities, school principals, banks, public transport companies, youth and women's organizations and other groups, it has become a regular feature of the Israel scene. In 1956, over 600,000 pamphlets were distributed to homes and every citizen was made aware of the problem.

In the light of research findings abroad, and in line with the Association's stand in relation to air pollution, it was decided to embark upon a countrywide anti-smoking campaign.

A special service of background information for the press has been started, with the Association supplying translations of articles published in foreign professional journals. This service has been very well received, much of the material being reproduced *in extenso* in the health science columns of the local press. Popular lectures and films on cancer are presented as well.

The Association has 41 branches, including branches in Nazereth, Shfar'am, Tamra, Baqa-el-Gharbiya, Taibeh and Tira.

ILAN — Israel Foundation for Handicapped Children

Ilan was founded in April 1964 through the amalgamation of three organizations: Ilanshil-Polio, Shatlem (a parent organization for the promotion of services to children with cerebral palsy), and Alyn (a hospital for crippled children). It serves more than 10,000 children, handicapped as a result of polio, cerebral palsy and other neuro-muscular conditions. It renders assistance in the following ways:

The "*Onn*" *School and Kindergarten* in Tel Aviv offers children with cerebral palsy, in addition to regular classes, speech therapy, occupational therapy, and physiotherapy. The School comprises two kindergarten classes and eight elementary school grades. *The Jerusalem School* for children with cerebral palsy, operating on the same lines, was founded in May 1966. The *Ofakim Centre* in Haifa also combines instruction and therapy.

In the *Pomerantz Library* in Tel Aviv handicapped students may use the facilities of reference books, and receive tuition from Ilan volunteers. A special fund grants scholarships for secondary and university education.

Vocational education: Ilan's social workers direct handicapped adolescents to vocational guidance centres, help them to receive suitable training and care for job placement. For those who cannot, because of their handicap, be absorbed in the general labour market, Ilan maintains a sheltered workshop in Givatayim. There the apprentices are employed in a machine shop, an assembly department and a weaving department. Good results have been achieved. Recently, the workshop was awarded the Eliezer Kaplan prize for production efficiency.

In the *Kennedy Day Centre* in Tel Aviv, bedridden children with cerebral palsy are cared for by a professional staff under the medical supervision of the Assaf Harofe Government hospital.

The *Sport Centre* in Ramat Gan was founded in 1961. It has special facilities for basket-ball, table-tennis, archery, swimming, fencing and gymnastics under medical and professional supervision.

Ilan organizes special *summer camps* and *holiday facilities*; it also helps many youngsters to participate in regular school summer camps and recreation centres.

Transportation represents the largest item in Ilan's budget. Children are brought by Ilan transportation to school, physiotherapy centres, sport activities and social events.

The *Alyn Orthopaedic Hospital* in Jerusalem was founded by the Society for Crippled Children in 1936. It is administered by a board, which includes representatives of the Ministries of Health, of Education and Culture, and of Social Welfare.

Alyn accomodates 75 children from infancy to the age of 18; the average stay is three years. Admission is limited to children who can benefit from the normal educational facilities provided. There are a kindergarten and an elementary school, and the children are given pre-vocational and vocational training and participate in supervised leisure time activities.

Treatment is afforded to children suffering from infantile paralysis, cerebral palsy, muscular dystrophy, spinal paralysis and meningomyelocele. There are, in the hospital, a surgical ward, a unit for congenital spinal cord lesions, a department for crippled children being trained towards independence, physiotherapy and occupational therapy departments. About 25 patients are discharged each year, most of them back to their homes. Hospital social workers maintain contact between the children and their families and endeavour to secure appropriate placement for the discharged.

Besides the services rendered to hospitalized patients, medical and educational services are furnished to a number of children living at home and using the day-time facilities of Alyn's school.

The out-patient clinic ensures follow-up of former patients and early care of potential new ones. Individual financial assistance is given directly to the patient or his family upon recommendation of the social welfare authorities in his area of residence.

Ilan provides orthopaedic appliances, wheel-shairs, vehicles, special help for bed-ridden children, such as home-to-school telephone hook-ups and additional tuition, assistance in finding suitable housing for families of disabled patients, such as loans to handicapped adults to enable them to set themselves up in business, home help in emergencies or in special situations.

Ilan has 60 branches. The budget is covered by donations, fund-raising, membership fees, benefit performances, collecting boxes, grants, endowments, legacies, contributions from Israel as well as from abroad. The budget for 1965 was IL 2,000,280.

WIZO — Women's International Zionist Organization

Wizo was founded in London in 1920, to serve women and children in Israel. Today, it numbers 230,000 members in fifty federations and groups throughout the world; the Israel federation has 80,000 members in 182 branches.

Wizo health services in Israel are two baby homes and child care centres with their attached nursing training schools, in Jerusalem and Tel Aviv, and a home for emotionally unstable youth in Haifa. Wizo also provides instruction in hygiene and nutrition.

The *Mothercraft Training and Children's Centre* in Tel Aviv has a premature unit which cares for 30 infants. Opened in cooperation with the Ministry of Health, it is staffed with paediatricians and nurses specially trained to work with prematures. The infants are kept in the unit until they weigh 2.500 kgs. and are then transferred to another ward in the Centre to become accustomed to conditions similar to those in their home environments. They are taken home when they weigh 3 kgs.

The *Baby Home and Children's Centre* in Jerusalem has two wards and a mother-and-child health centre. The orthopaedic ward was opened in conjunction with the Hadassah Medical Organization to ease the pressure of demands on its hospital. It has room for twenty pre- and post-operative patients between the ages of 5 and 17, who may enter the ward for several days prior to surgery and for extended periods following it. The operating potential of the Hadassah hospital is thus increased and a period of convalescent care is made possible for patients. The rheumatic fever ward has room for about 25 children between the ages of 4 to 15. Referred directly from the paediatric department of the Bikkur Holim hospital, the children spend, on the average, several weeks at the Home, where their medical treatment is continued by the same physicians who attended them in the hospital.

The Home provides rest, a pleasant atmosphere, a carefully balanced and nutritious diet and classes organized by the Ministry of Education and Culture and conducted at the Home. An occupational therapist is available several times a week.

The Mother-and-Child Health Centre provides pre-natal and post-natal care to mothers and infants and operates along the lines laid down by the Ministry of Health.

To both baby homes *nursing training schools* are attached. The course offers 18 months of study and practice in caring for infants and toddlers, and three months' practical work in a hospital. At the conclusion of her training, each graduate must pass an examination before her diploma is granted by the Ministry of Health. Tuition, board and lodging during training are free. Over 6,000 nursery nurses have already been trained at the two schools. Graduates work primarily in clinics, kibbutz creches and immigrant villages.

Ahuzat Yeladim (Children's Centre) in Haifa is a home for children and adolescents with problems of social adjustment. Offering an atmosphere of security to neurotic and emotionally unstable children, the Centre employs a psychotherapist and a social case-worker full-time. When necessary, a

psychiatrist is called in. A health centre with modern equipment has been built on the grounds. It renders the services of a psychiatrist and a psycho-therapist also to children who are not boarders of Ahuzat Yeladim. Two age groups are in residence: children between the ages of 10 and 14, who now attend classes on the premises, and adolescents between the ages of 14 and 18, who are apprenticed to workshops and factories in Haifa and attend evening courses.

Nutrition and Hygiene Instruction: Wizo's instruction department trains immigrant women, kibbutz cooks and housewives from all strata of the population in the elements of nutrition and balanced diet. The women are taught how to utilize locally produced foodstuffs, which is especially important for newcomers who cling to traditional diets. Work is carried on through demonstrations and cooking courses in development towns and villages and through publications, among them a book on cooking and pastry baking, a cook-book for diabetics and periodical pamphlets on food products.

The department has a special section for instruction in hygiene and child care, for newcomers; talks are given to small groups, and individual homes are visited. Work is also done among adolescent girls in immigrant villages, in classes within the programmes of Wizo youth clubs.

Wizo's vocational schools (at Nahalat Yizchak, Haifa and Rehovot) as well as its agricultural schools (at Nahalal, Nahalat Yehuda, Hadassim, Afula and Ayanot) give a general secondary education with specialization in agriculture and trades. The syllabus includes cooking and nutrition. 3,500 students (2,000 girls, 1,500 boys) have attended these vocational schools.

AKIM — Association for the Rehabilitation of Mentally Handicapped

The beginnings of the Association go back to the period shortly before the establishment of the State. There are now 17 branches, with a head office in Tel Aviv. Membership numbers some 2,500 parents and friends of the mentally handicapped and is, in the main, composed of kinsfolk of children who will remain dependent for ever.

The principal functions of the Association are:

Identifying and counselling the handicapped and their families; operating facilities such as sheltered workshops, clubs, hostels; encouraging special legislation for the protection of the handicapped and their families; public education; promoting the social and economic integration of the mentally handicapped.

Sheltered Workshops

In Jerusalem — a) a workshop for hand-weaving founded in 1954 as the first sheltered workshop in Israel. It is attended by 17 apprentices.

b) Rachel Straus House, offering classes in domestic science and industrial crafts for girls. Thirty apprentices attend.

In *Tel Aviv* — a workshop for 100 apprentices. A much larger workshop is being built in North Tel Aviv to serve a wider area.

In *Haifa* — the old, inadequate workshop has been replaced by a new building in Haifa Bay, which has now been enlarged.

In *Hadera* — an industrial workshop.

In *Netanya* — on the urging of Akim, the municipality has put up an industrial workshop, which Akim actively supports.

Club Activities are held in Jerusalem, four special afternoons or evenings, for apprentices of all workshops including 'Ma'as', the workshop of the Ministry of Social Welfare. A summer-camp is arranged on the premises of the Rachel Straus House. Club meetings are also held regularly in *Tel Aviv*, *Haifa* and *Hadera*.

Consultation and other aspects of social work activity by professionals and volunteers are part of the programme.

Day Nurseries and Hostels

The Eddy Shore Home in Jerusalem for 30 children of pre-school age, preparing them for entry into special schools; the Dr. A. Feuerring Memorial Clinic on the premises of the Eddy Shore Home, providing medical supervision and physiotherapy.

A Hostel for 30 adults is under construction. The building site, donated by the municipality of Jerusalem, adjoins the Eddy Shore Home. A day nursery is also operating in Ramat Gan.

MICHA — Society for Deaf Children

Micha, since its founding in 1952, has been encouraging or setting up new services and programmes; providing assistance to those existing; and aiding individuals in need of special help.

During its first five years, Micha assisted the schools for the deaf in Tel Aviv and Jerusalem in many ways, including the gift to each of a group auditory training unit. A cornerstone of modern education of the deaf is the training and development of the use of hearing. 95% of deaf children have at least some residual hearing. The better the hearing is trained, the better the child will speak, and the better will he learn.

Pre-school educationalists, parents themselves, professional educators of the deaf and the medical profession in general now realize that the most crucial years of a deaf child's life are before school-age. In Israel, there were good audiology centres, already doing an effective job of testing very young children. Parents were told that their deaf children required special training and education, but only a few children of well-to-do families were getting the necessary help from expensive private teachers. Hence Micha assumed responsibility for providing this early training and education. In 1957, a guidance and training centre was opened, constituting today Micha's major activity.

To explain the basic purposes of the Centre, certain underlying principles in the education of pre-school deaf children should be set out:

The education of deaf children begins as soon as the deafness is discovered, even before the age of one, if possible. The fate of the deaf child depends a great deal on the love, care, attention and training which he receives from his parents. The most effective method of teaching deaf children is the 'oral acoustic', developed in such centres as the University of Manchester and the John Tracy Clinic in Los Angeles. This means the development of oral speech and language and the maximum exploitation of hearing.

The following is a summary of the programme of the Centre:

Lessons for Children

About 90 children now get lessons twice a week either in the Centre in Tel Aviv or at its branch in Ashdod. The children vary in age from 1.2 to 6.5 years. The main handicap of early deafness is not deafness itself, but the fact that the deaf child will not develop speech and language naturally. Therefore, the basic aim of lessons in the Centre is the development of oral speech and language. Of parallel importance, as previously stated, is teaching the child to make maximum use of his hearing and to hear the sounds of the world and human speech, including his own voice.

Annual Parents' Course

Since the fate of the deaf child is in the hands of his parents, a great deal of the time and efforts on the part of teachers and social workers is devoted to them. The Centre sponsors an annual parents' course, in which physicians, educators, psychologists and other experts discuss such fundamental problems as deafness, the development of speech and language, hearing-aids and the education of deaf young children.

Diagnostic Service

The Centre cooperates very closely with audiological centres.

Nursery School Programme

Deaf children need a dual nursery school programme: they should attend a regular nursery school, so as to be in an atmosphere of normal speech and language, and also attend a special nursery programme devoted to the particular needs of deaf children. A nursery school of that kind is run by Micha.

Acquisition of Hearing-Aids

Because of the importance of early amplification and auditory training, Micha sees to it that every deaf child wears a binaural hearing-aid as soon as possible. To help indigent families, it maintains a hearing-aid fund.

Guidance and Counselling Service

This includes: a social service department, a psychological evaluation service and guidance for nursery school teachers who have Micha children in their groups.

Public and Professional Education

Micha staff frequently give lectures and are hosts to many visiting doctors, nurses and students. In 1964, in cooperation with the Ministry of Education and Culture, Micha conducted the first course for training teachers of the deaf in Israel; 21 persons attended it.

The professional staff of Micha, all of whom have had advanced training, include a director-teacher, an assistant director-teacher, three part-time teachers, a nursery-school teacher, a social worker and a psychologist.

More than 80% of the Centre's budget is provided by fund-raising activities; the rest comes from governmental and semi-official sources.

HELEN KELLER HOME —

The Association for the Deaf and Mute in Israel

The Association has been active since 1944. Its programme comprises cultural and social activities, including language courses and dances; training courses in carpentry, confection, shoe-repair, I.B.M., diamond polishing, and photography; a vocational school (three-year course) was opened in November 1966 in cooperation with the Association; assistance in schooling; social welfare; work placement, loans; participation in sports, festival programmes, a pantomime group; publication of a quarterly journal in Hebrew, and a bi-annual in English.

THE ISRAEL RHEUMATIC FEVER SOCIETY

This Society was founded in Jerusalem in 1957 by voluntary communal workers, in cooperation with the Rheumatic Fever Medical Council of the Jerusalem Academy of Medicine, in order to combat the high incidence of rheumatic fever and rheumatic heart disease, particularly in Jerusalem.

Nearly two thousand families, registered with the Society, were receiving material aid and advice in 1966. Regular contact is maintained with those families referred to the Society by school doctors and nurses, by hospitals and other institutions.

The programme of the Society is both preventive and curative. In the preventive area, activities include re-housing of families where unhealthy living conditions may have favoured recurrence of the disease; a campaign to equip school classrooms with adequate heating; and stimulation of public understanding and cooperation in the fight against rheumatic fever.

A summer convalescent camp is held annually, for about five hundred children, with the help and supervision of the Jerusalem municipality. Close on a million eggs were distributed in 1965. A winter project is the distribution of woollen sweaters and blankets, rainproof duffle-coats and rubber boots. Bedridden children and children who have fallen behind in their studies because of the disease are provided with visiting teachers. Financial aid is given towards vocational training.

Women suffering from rheumatic heart disease — mothers of large families — are helped to get washing machines, to ease the burden on their health and strength.

The work of the Society is made possible by the generous assistance of members and friends in Israel and abroad, of the Jerusalem municipality, and of the Government.

THE ISRAEL DIABETES ASSOCIATION

The Association has branches in Jerusalem, Tel Aviv, Haifa, Nahariya and Be'er Sheva. Activities include lectures on various aspects of diabetes. At the meetings, doctors answer patients' questions of general interest in connection with the disease. Films pertaining to diabetic problems are presented. Courses for dietary cooking and food exhibitions are arranged.

Children's summer camps have been held for some years on Mount Carmel and at Kiryat Tiv'on near Haifa, about 40 diabetic young children attending. Together with healthy children, they take part in all the usual

activities. A special staff takes care of their dietary and medical needs; they learn to do their own urine tests and most of them know how to give themselves insulin injections. The camp proves to be of great benefit to their physical and mental health: given a chance to share in all interests with healthy children, they gain confidence and independence. Special guidance is given to their parents at the same time.

The official bulletin of the Association, "Sakeret" (Diabetes), contains popular papers, dealing with medical, social, dietetic and various other problems pertaining to diabetes; a special column is devoted to "questions and answers".

The physicians' branch of the Association holds regular scientific meetings; this branch is affiliated to the Scientific Council of the Israel Medical Association.

The Association is acknowledged as a member of the International Diabetes Federation; its delegates take part in the triennial congresses of the Federation. Regular reports on its activities are published in the "News Bulletin" of the Federation.

MIGDAL-OR —

American-Israeli Light-House Rehabilitation Centre for the Blind

Migdal-Or, founded in Kiryat Haim in 1957, opened a new page in the chapter of rehabilitation of the blind in Israel. The traditional vocations taught to the blind, such as basketry, weaving, brush- and mat-making, were eliminated, because they did not ensure a livelihood. Metal-work, carpentry and assemblage, fitting, sewing and weaving, which are much more rewarding, are taught instead, and every trainee is also given a minimum general education to facilitate integration at work and in society.

The training programme is intensive and individual, and includes a 4-6 weeks' trial period which also serves as a period of adaptation in which the capabilities, interests and knowledge of the trainees are observed. During this period the trainee is taught to look after himself, to walk with the help of his cane, Braille, and such subjects as arithmetic, Hebrew and civics. He is taught regular typing as well, as a means of communication with the seeing world. A spell of 6-9 months permits most trainees to become employed under normal conditions.

By world statistics, the average incidence of blindness is two per mille of population, which means that there ought to be by now 4,000 blind persons in Israel. Actually the figure is much higher, owing to immigration from all parts

of the world and particularly from Near Eastern countries where diseases of the eye are common. In 1963 alone, 800 blind people entered Israel from Algeria. In 1965, the total number was about 7,000, divided by age as follows:

0-13 years	5%
14-60 years	60%
Above 60 years	35%

According to modern rehabilitation philosophy, blind children should attend regular schools and learn together with normal children. The child does best in his family circle, surrounded by parents and kin, and it is not advisable to remove him thence, severing his familial and community contacts and place him in an institution. Blind children who receive the right education and treatment have every chance of succeeding as adults.

The most suitable age for vocational and social rehabilitation is that between 14 and 60 years. Rehabilitation begins with medical treatment. Wherever it is possible to help the blind person by that means or by surgery, the need for rehabilitation is obviated.

The great majority of trainees who come to Migdal-Or are retarded in their development as a result of earlier neglect. Not one is capable of looking after himself or even walking alone. Few know how to read and write. Most have been accustomed to lying on their beds at home, isolated from the outside world. Some cannot even feed themselves.

Many had been under psychiatric care, including extended hospitalization. In addition, there is the problem of language, as most do not know enough Hebrew and are brought to Migdal-Or straight from the dockside. On top of that, the economic problem faces all of them. The rehabilitation task is, therefore, a very difficult one.

As a rule, great change occurs after the first 4-6 weeks. Frequently, the blind person feels, for the first time in his life, that he is surrounded by people whose interest is centred on his successful rehabilitation. He finds out that he can do many things that he would never have dreamt a blind person could do. He comes in contact with the rest of the trainees and realizes that others also have weighty problems, no less difficult than his. He takes part in social activities, learns to play chess, listens to lectures and speaks in debates. He begins to play and sing. Slowly he gets used to his new milieu and discovers his place in it and his special concerns. At the same time, he grasps the true significance of his potential and assesses his own capabilities.

Moreover, his new social group, including members of the opposite sex, comprising a variety of ages, backgrounds and interests, spurs him on to activity and to the finding of his role in society.

THE NATIONAL COUNCIL FOR THE PREVENTION OF ACCIDENTS

The Council is a non-governmental public body, whose principal aim is the education of Israeli citizens in road safety. It was founded in 1954.

The 'Careful Driver' Competition is an annual competition, now in its fifteenth year. Every driver who pays a membership fee to the Council, and has not been found guilty of any accident constituting an offence, traffic or otherwise, qualifies for the title 'Careful Driver' and participates in a lottery with handsome prizes. To date, 80,000 drivers, a third of the active drivers in the country, have competed.

Safety Patrols are organized jointly by the Ministry of Education and Culture, the Israel Police Force and the Council and comprise two elementary school grades (the sixth and seventh), each embracing 35,000 pupils. In the sixth grade, the children are taught safety rules and the ways in which they will carry out their duties in the seventh: guarding the approaches to schools and showing other children the proper way to cross the road safely. There have been only few accidents involving children on their way to and from school since the patrols were organized.

Traffic Observers — Some 3,000 veteran drivers with clean driving records report traffic violations and traffic obstructions to the Council. On the basis of these reports, the Council sends letters of warning to the offending drivers, and prevails upon the relevant authorities to remove obstructions.

Courtesy Campaign — The lack of courtesy and consideration for others is characteristic of today's road traffic. To improve the situation, the Council runs a special campaign: courteous drivers are publicly cited in the press for their politeness, and receive prizes and souvenirs.

Child Safety — During the months of July-August, the Council, together with local authorities, operates many playgrounds to keep children off the streets and induce them to play in safety. This activity is accompanied by wide publicity in the press and on the radio.

Preparation of Vehicles for Winter — This activity is carried out in cooperation with the Israel Garage Association.

Safety of Pedestrians — At the beginning of autumn, instructional operations are carried out in the streets of each town, with the aim of arousing a general sense of pedestrian safety, including the correct crossing of roads. Thousands of volunteers from the Safety Patrols and older boys and girls take part.

Education of Cyclists — From January to March, there is a special operation to ensure that bicycles are kept in good condition, by checking them when they are submitted for yearly municipal licensing. The Council pays for the painting of each rear mudguard and distributes thousands of reflector-strips. Furthermore, cyclists are instructed in correct cycling, knowledge of traffic regulations pertaining to them, and the proper method of maintaining their vehicles. The operation is carried out as part of a competition, with policemen on leave acting as instructors and examiners. Thousands of children compete each year.

Current Publicity Campaigns — Throughout the year, the Council maintains publicity activities over the radio, in the press, through film shorts in the cinemas, posters and pamphlets. Editing is done in accordance with a defined 'monthly subject' adapted to the season of the year, the different types of population, and the common causes of accidents.

Distribution of Traffic Laws — The Council considers it its duty to enable all citizens, and especially drivers, to know traffic rules. For this purpose, it prints traffic regulation booklets in a quarter of a million copies, written in popular style with illustrations, and distributes them throughout the population. It has distributed one such booklet for drivers and another for cyclists, and pamphlets for tourists. The booklets are in Hebrew and Arabic, and the pamphlets in English and French. The Council also organizes competitions, with prizes, in the knowledge of traffic rules and correct road behaviour.

Courses for Drivers — The Council runs advanced driving courses for groups of private and professional drivers. Each course takes from twelve to eighteen hours, and the main theme is 'Defensive Driving'. It also holds information evenings and assemblies in public halls or in the places of employment.

Radio Programmes — The Council has two permanent programmes on Kol Israel, the Voice of Israel. Both deal with traffic and road safety, and enjoy one of the highest listening rates in the country.

Other Activities — The Council puts up many information signs along the highways. It also produces films on road safety and arranges to screen them in cinemas and schools and at meetings throughout the country.

It maintains instructional playgrounds and halls for school-children, and organizes road safety pavilions at national exhibitions (such as the Middle East Trade Fair, motor shows and the like).

Financial Resources

The annual budget is approximately one million Israeli pounds. It is covered from the following sources: 25% from the Government; membership fees and donations from individuals, firms and institutions; participation fees in the cost of the courses held; participation by firms in the expenses of joint information projects; and proceeds of lotteries.

MALRAZ —

Council for the Prevention of Noise and Air-Pollution

The Council was founded in 1961, after promulgation of the Abatement of Nuisances Law of that year. It endeavours to assist the authorities empowered to enforce the Law by giving considered, expert opinions based on investigations by its specialists, by informing the public of the problems involved in the prevention of nuisances, and by bringing existing nuisances to the attention of the authorities concerned. It has already intervened successfully in many cases.

PART 4

*Social Welfare,
Including Social Insurance*

NATIONAL INSURANCE

In 1949, the Government set up an inter-ministerial committee to examine the problems of introducing a National Insurance Scheme. The committee, headed by Mr. Itzhak Kanev, Director of the Social Research Institute of the Histadrut, submitted its report in the autumn of 1950.

The report recommended the establishment of six insurance branches: Old-Age and Survivors' Insurance; Work Injury; Maternity; Health; Invalidity; and Unemployment. The National Insurance Act, passed on 18 November 1953, embraced only the first three branches; the others were deferred until it would become possible to assess the results of the first stage. The Act came into force on 1 April 1954, and has already been amended 13 times. It is administered by the National Insurance Institute, a statutory public body separated from the Government.

Old Age and Survivors' Insurance

This branch is the core of the scheme, covering the entire population from 18 years up — employed persons, self-employed and non-employed.

The minimum entrance age is 18 years, or the date of becoming resident. To alleviate the distress of aged persons who were already in the country on 18 November 1953, the Act stipulates 67 as the maximum entrance age, but for newcomers after that date it is 60 for men and 55 for women. (The maximum entrance age for women has recently been raised to 60 as well.)

One could regard this as discriminating against new arrivals, which might appear strange in a country the very existence of which is based upon immigration. It should not be overlooked, however, that the economy of the young State is still too weak to carry unaided the economic burden that immigration lays upon it. The burden is borne to a large degree by contributions and loans from abroad, from which the National Insurance Institute does not, however, benefit, at least not directly. A special Old Age Assistance plan has been initiated by the Institute for needy immigrants.

Old-Age Insurance. The qualifying period for an old-age pension is generally at least five years of insurance, during which time full payment of contributions is required. The qualifying period was a minimum of three years for late entrants, that is for those who on the appointed day, 18 November 1953, were 60 years or more (men), or 55 years or more (women), and resident. The fairly brief period of three years only in the transitional stage after promulgation of the Act was very advantageous for those then approaching pensionable age.

As in many countries, the absolute pensionable age (i.e. irrespective of retirement) is 70 for men and 65 for women. Persons who retire from employment or work are eligible at 65 (men) or 60 (women).

Pensions are paid on a flat-rate basis. The basic monthly figure, at first IL 15 but later increased to IL 17.70, rises after at least ten years of insurance by 2% per annum for each additional year of insurance, with a maximum of 50 per cent. A further supplement of 5% per annum, with a limit of 25%, is paid to persons who postpone their retirement.

Two other elements influence the pension rate, namely, family composition and the cost-of-living index. The basic monthly old-age and survivors' pension may be advanced from IL 17.70 to IL 40.12 in the case of an insured person with three or more dependants. Taking into account the October 1966 index of 369.5 points, an actual amount of pension of IL 65.45 for a single person, IL 98.15 for a couple, is arrived at.

Israel has followed the example of a minority of countries in establishing flat-rate pensions, their amounts varying with the number of dependants, the length of the insurance period, changes in the cost-of-living index and postponement of retirement. On the other hand, it collects contributions on a percentage of wages or income, up to a certain ceiling.

During the first years of the Scheme, with a qualifying period of three years and payment of minimum contributions, thousands of insured persons became eligible for old-age pensions; their contributions in many cases represented one two-hundredth part of the accumulated value of the pensions. By 31 March 1966, 82,300 old-age pensions were paid by the Institute.

The Scheme thus mitigates the economic hardship of many aged persons who had been supported by kinsfolk or by social welfare agencies. But the rate of pension is relatively low, and the need for additional pensions for workers and salaried employees still persists.

Approximately 50% of the insured population are connected with provident or pension funds. The first provide for a lump-sum payment to the retiring worker; the second provide a pension over and above the one under National Insurance. The funds, established by the Labour Movement, are maintained by contributions of employer and worker, ranging from approximately two to five per cent of the gross wage from each party. The Act links these supplementary arrangements to National Insurance and lays down that, if the rate of National Insurance contributions rises, participant employers and workers may decrease their contributions to the arrangements proportionately. Generally, the supplementary pension is calculated as a percentage of the last salary or wages, and the National Insurance pension is fully or partially taken into account in the calculation.

Survivors' Insurance. The scope is the same as in old-age insurance, but the qualifying period is only one year. There are two kinds of benefit: burial grants and widows' and orphans' pensions. By 31 March 1966, 22,041 survivors' pensions were paid by the Institute.

Work Injuries Insurance

Employer responsibility for work accidents was established in Palestine as early as 1927 by the Workmen's Compensation Ordinance. This was replaced in 1954 by Part II of the National Insurance Act, improving the rights of insured workers, introducing the right to medical and vocational rehabilitation, substituting the responsibility of National Insurance for the individual responsibility of employers and reducing premiums paid until then to insurance companies. National Insurance relieved Kupat Holim of payment of the cost of treatment of injured workers.

The branch comprises employed persons, members of cooperatives, persons in vocational training or rehabilitation, and, since July 1957, self-employed persons.

The condition of benefit is a work injury (accident or occupational disease) occurring at, or in the course, of employment. Occurrence of an accident on the way from home to work, or *vice versa*, is also covered. Compensation is paid only for those occupational diseases which are listed in the Regulations made under the National Insurance Act.

Benefits awarded are medical treatment, medical and vocational rehabilitation, plus the following cash benefits: 75% of the last wages, up to a certain maximum, for the period of incapacity for work, but not exceeding 26 weeks; temporary or permanent disability pensions, according to degree of invalidity and lost wages. A lump sum is paid in lieu of invalidity pension for disablement up to 24%, and may be paid in case of disablement up to 75 per cent. In case of death, pensions are payable to dependants at the rate of 60% of the full disability pension for a widow or widower, and of up to 100% for a widow with three or more children. In certain circumstances, dependent parents may also be eligible for pension.

Medical care, including medical attendance, hospitalization, medicaments, and the supply, repair and replacement of orthopaedic and therapeutic appliances is provided, at the expense of the Institute, by the medical services of the Government, by recognized Sick Funds, and, for independent workers, by private practitioners also. The Institute has come to agreement with all of these agencies, and with the Israel Medical Association, assuring adequate medical treatment for injured persons, who are also entitled to the benefits of convalescence facilities as well as physical and vocational rehabilitation.

During 1965/66, 85,000 claims were approved; about 2,000 pensions were paid to incapacitated workers and 1,000 pensions to dependants.

The Institute has a staff of trained social workers for vocational rehabilitation.

Maternity Insurance

This offers two benefits: birth grants to all insured women and to the wives of insured men who only work at home; and maternity allowances to self-employed and employed women.

A woman is entitled to a birth grant if she is a resident, is insured in her own right or by virtue of her husband's insurance, and if her confinement takes place in hospital. The third condition reflects a trend particular to National Insurance in Israel and is prompted by the fact that, in many cases, home confinement might endanger the health of mother and child. It could be argued that the findings of social and psychological research suggest that home is preferable to hospital confinement, but, for the majority of cases, housing accommodation is limited and medical and obstetric aid could not invariably be assured. For considerable sections of the population, especially immigrants from the Oriental countries and Arabs, hospital confinement is an entirely new experience.

The inducement for hospital delivery has proved most effective: the rate of hospitalization for childbirth among Jewish women has risen to 99% of all births, and among Arab women it has risen from 5% to 70% since the National Insurance Act came into force. The available number of hospital beds for the purpose is sufficient, at least for the time being.

To ensure births in hospital, another difficulty had to be overcome. For the benefit of women who live in distant villages, the Institute came to an agreement with Magen David Adom — the Red Shield of David Organization — to pay the cost of transporting an expectant mother to hospital, if the distance from her home to the nearest hospital exceeds 15 kilometres, a small part of the cost of transportation being covered by the pregnant woman.

The Institute has also contracted with all public hospitals for the entire cost of childbirth hospitalization to be met by the Institute and the hospital authorities.

Besides this free hospitalization, the mother is entitled to a cash benefit of IL 75 for each child born at the same birth, and has the choice of getting the layette for the infant in cash or kind; if in kind, the mother, or the mother-and-child health centre concerned, applies.

In the course of time, hospital confinement has almost developed into the benefit of a social service, losing some of its insurance character. The benefit of free hospitalization is now given also to mothers who do not fulfil the statutory conditions, because the Institute is interested in assuring hospitalization in all cases, even where the woman or her husband has failed to pay insurance contributions. By an amendment of the Act, even mothers uninsurable because of youth may receive the birth grant.

The statutory maternity allowance took the place of the paid maternity leave to which certain groups of employed women were entitled under the Employment of Women Ordinance of 1927; the obligation to pay maternity leave then fell on employers. The National Insurance Act enlarged the scope of eligibility to include women in temporary employment, in agricultural work, members of cooperatives and self-employed. The allowance is paid for 12 weeks, and half of the period can be before birth. The rate is 75% of the average wage during the three months preceding interruption of work, up to a certain maximum.

The qualifying period for eligibility is 10 months of insurance out of the 14 months preceding the first day of eligibility. The allowance is only paid for 6 weeks if a woman has worked for 10 months out of the 18 months preceding that day.

Two categories of women who formerly were not entitled to a maternity allowance, namely members of kibbutzim and moshavim, now benefit from the allowance. As most of the second category are immigrants, the social importance of the allowance for them cannot be overestimated.

Allowance for Large Families

The main goal of this allowance is to reduce the gap between the levels of living of large and small families, that is, to transfer purchasing power to families with many children. Most large families are found among immigrants from Asia or Africa, as well as among Arabs. The basic assumption is that large families are also the weakest economically, the income of the sole breadwinner being divided among many mouths.

Until 1 September 1959, when the allowance under the Act came into effect, most employers paid family allowances for children under employment contracts, limited generally to the first three children, and not all workers benefited. The Act provides for an allowance for each additional child under the age of 14 beyond the third, and applies to all insured persons, including the self-employed and the unemployed. It is paid to the father, as a rule, but, in certain circumstances, it may be paid to the mother or to a legal guardian.

In determining eligibility for the allowance, step-children or adopted children are taken into account, and, in special cases, grand-children, brothers and sisters, and handicapped children beyond the age limit.

To be eligible, the parent must have been insured for at least 6 months and have paid contributions for the whole insurance period; delays in payment may not exceed 6 months. Employees, however, are, in general, entitled to the benefit, irrespective of payment by the employer.

The allowances are paid by the Institute four times yearly, direct to the insured person.

While the number of large families, as statutorily defined, is relatively small, the percentage of children belonging to them is about 45 % of all children under age-limit. This means that the economic condition of large families affects almost half of all children.

In the Jewish community, the number of children is in inverse proportion to the economic security of the family. Thus, apart from self-employed persons, the largest families are to be found among the unemployed, with families in immigrant villages in second place. About three-quarters of the beneficiaries are families which arrived in Israel after the establishment of the State. Families of Asian and African origin constitute 80 % of Jewish beneficiaries, and the number of Arab beneficiaries is very high.

The extra income provided by the allowance is small, but it has considerable weight in comparison to the other, usually limited, sources of income of the families; the average supplement ranges from 8 to 10 per cent.

Since 1 August 1965, the age limit of eligible children for the allowance has been fixed at 18 years instead of 14 years and for handicapped children at 25 years instead of 18 years. On the same date, a family allowance scheme was introduced for the first three children of employed persons, the monthly rate for each until the age of 18 being IL 10. Inclusion in the scheme of the children of self-employed persons is under consideration.

SOCIAL WELFARE SERVICES

Social welfare programmes in Israel are carried out by voluntary organizations, public and semi-public bodies, local authorities and Government departments. The Ministry of Social Welfare is responsible for the broad programmes and can be considered the central authority in this respect. Programmes, mainly of a statutory character, are also undertaken by the National Insurance Institute which implements the provisions of the National Insurance Act; the Ministry of Defence, which deals with the rehabilitation of war invalids and the care of war widows and war orphans; the Ministry of Health, which integrates social services into health services rendered to individuals, families, and communities; other Government departments, such as the Ministry of Police (Prison Service), are responsible for welfare activities within their own settings. Large-scale programmes are also effected by two semi-public bodies: the Jewish Agency, in particular its Absorption and Youth Aliyah Departments; and Malben, the Israel agency of the American Joint Jewish Distribution Committee, its activities

comprising medical, social and vocational rehabilitation for aged and handicapped persons, mainly new immigrants.

Programmes have undergone considerable changes, the main trend in recent years having been, on the one hand, towards unification and, on the other, towards decentralization.

The need for unification and overall planning arose partly from the manifold tasks in the social sphere which confront Israel as a country of mass immigration, tasks which had been, and are being, tackled by a variety of bodies, most of them having functioned in one shape or another before statehood was reached. A primary necessity then was coordination of effort and its direction towards a common goal. The main responsibility for this devolves upon the Ministry of Social Welfare, with the assistance of public councils established by it; one of them is the Social Council.

In 1948, when the State came into being, there were social welfare bureaux in most urban areas, which had been set up by the non-governmental Jewish community councils. These now formed the nucleus of the social welfare offices established all over the country, under the guidance and supervision of the Ministry of Social Welfare, and their activities naturally now extended to all sectors of the population, Jews and non-Jews alike.

Whilst, at the beginning of statehood, the Ministry of necessity had to take the lead in setting up social welfare bureaux where none existed and in initiating country-wide services, it soon became alive to the dangers which would be entailed by a concentration of all executive powers in the hands of any one authority. For some time past, therefore, its aim has been to make its direct aid more and more redundant as municipal effort takes over, and to further and promote local initiative. There are altogether 179 bureaux, of which 17 are in localities not yet accorded municipal status, which means that services there are maintained by the Ministry directly. The Ministry's contribution towards the budget of the other bureaux ranges from 25% to 90%, according to need. Budgets are planned and allocated on the basis of annual assessments. In 1965/66, 116,000 families received aid and advice from bureaux; 64,000 of them had financial and/or other forms of material assistance, 35,000 being in receipt of assistance allowances on a regular or temporary basis.

The year 1958 saw the passing of the Welfare Services Law, which requires every local authority to maintain a welfare office and give aid to indigent residents. The functions of the Ministry of Social Welfare vis-à-vis the local authorities are clearly defined. The law empowers the Minister and local authorities to claim and collect maintenance on behalf of an indigent person from the members of his family who are liable for his maintenance within the definition of the Family Law Amendment (Maintenance) Law of 1959. According to an amendment of

the Law, passed in 1965, Regional Appeals Committees have been established, members of which are appointed by the Minister of Social Welfare in consultation with the local authorities. Any client of a social welfare bureau who considers his claims unjustly treated may lodge an appeal with the Appeals Committee regarding any decision of a social welfare bureau. Applicants for aid who do not receive a reply from the welfare bureau within a reasonable time limit may likewise lodge a complaint with the Appeals Committee.

Another law, the Law of Supervision of Homes, enacted in 1965, is likely to have a considerable impact on social welfare administration. It stipulates that all residential institutions and foster homes (providing for 3 or more residents) for children under the age of 14, or aged, or physically and/or mentally handicapped persons must obtain a licence from the Ministry of Social Welfare. The amendment specifies under what conditions such licences are granted.

In addition to its work in the spheres of planning, coordination and supervision of services, and preparation of legislation, the Ministry administers certain services directly: examples of statutory services are the probation services for juvenile and for adult offenders and the Youth Protection Authority responsible for children and young persons placed outside their own homes by order of a Court; examples of non-statutory services are the services for the aged, the blind and the mentally retarded, community work and youth rehabilitation. All these services act in an advisory capacity to the welfare bureaux of local authorities.

Supervision and general direction of operations form the main tasks of the Ministry's Divisions of Family Welfare and of Child and Youth Welfare; most public welfare services in Israel are based on the conception of family welfare.

The Division of Public Institutions supervises all bodies raising funds locally or abroad for charitable or partly charitable purposes, or maintained from funds so raised. Certificates of recognition are granted to bodies and institutions known to be *bona fide* and satisfying certain minimum demands of public administration, including audited accounts. The Division also serves as a channel for distributing gifts in kind from abroad to local charitable institutions.

The Public Trustee of Charities is appointed by the Court, on the basis of an Ordinance of 1925, to administer charitable trusts according to the respective trust deed, regardless of whether the author of the trust was resident in or outside Israel; this is to ensure that trusts are used for the purposes stipulated.

The services of the Ministry also play a decisive part in the implementation of the Adoption Law of 1960, the Youth (Care and Supervision) Law of 1960 and the Welfare (Procedure in Matters of Minors, Mentally Sick and Absent Persons) Law of 1955. Arrangements for adoption are supervised by the Divi-

sion of Child and Youth Welfare; social workers have been appointed to act as welfare officers for the purposes of two other Laws. The promulgation and implementation of these statutes have widened the scope of welfare work considerably. Whilst welfare work had previously been mainly limited to indigent persons who turned to social welfare officers for material aid or institutional placement, now every citizen, whatever his economic and social status, might come within its purview. The welfare officer has thus received recognition as a guardian of the welfare of the community at large.

In line with this development, social work training has been entirely re-organized within the last decade and facilities for research have been extended. The Paul Baerwald School of Social Work, with its seat in Jerusalem and a branch in Tel Aviv, forms part of the Hebrew University and offers a three-year course leading to the degree of Bachelor of Social Work. In the academic year 1966/67, two new degree courses in social work were introduced, one at the Bar-Ilan University at Ramat Gan, and the other at the Haifa University Institute. The academic programme of the latter is supervised by the Hebrew University of Jerusalem.

To overcome the acute shortage of social workers, Arab and Jewish alike, especially in rural areas and in new development towns, courses in social work are held in those places by the Social Work Training Institute of the Ministry. Candidates for the district training centres are selected from among local residents who undertake to work in the area or locality after graduation. The course, extending over three years, combines practical training with theoretical studies, and graduates are at once assigned to local welfare bureaux.

In 1963, moreover, a Seminary for the Training of Youth Workers was established by the Ministry. The Seminary provides a full-time training course of 25 months' duration for youth workers (educators) in the homes of the Youth Protection Authority of the Ministry. It also holds in-service training courses for educational and administrative workers in various other institutional settings, such as youth rehabilitation centres, homes for the retarded and general children's homes (both private and public).

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YOUTH ALIYAH

The main objectives of Youth Aliyah have undergone no change since its inception 34 years ago. Today, as in the past, they include child rescue — the ingathering of children from countries where their physical or cultural existence as Jews is threatened; acculturation — the process of enabling children and youth to acquire the values, attitudes and behaviour of the Israeli; and rehabilitation — the lessening of physical, psychological and social handicaps, to allow that acculturation to take place.

This unique child-rescue movement was started in 1933 during the early days of Hitler's rise to power in Germany, when the first group of youngsters was sent to Palestine on the initiative of Mrs. Recha Freier. It was Henrietta Szold, one of the outstanding figures in Palestine at that time, who elaborated the basic educational principles of Youth Aliyah, encompassing study, agricultural work and active group life. This three-fold programme has been all along the pivot of Youth Aliyah education, adapted and transformed to deal with the different needs of children who came, consecutively, from over 80 different countries.

By now, Youth Aliyah has held out a helping hand to almost 130,000 children from all over the world. In the past year alone, it received 5,000 wards, and today there are more than 12,000 children in its care — in youth villages, youth groups in kibbutzim, vocational training centres, yeshivot and other educational institutions; 2,500 of them attend youth day centres.

The children from India, Yemen, Iraq, Iran and North Africa who arrived in large numbers after the establishment of the State differed from those who had come during and after World War II, and Youth Aliyah had perforce to learn, by trial and error, how to cope. Some children came with their parents, some alone, to be followed by their families. Some came from broken homes.

As time went on, Youth Aliyah had to turn its attention to the slums of Israel itself, where size of family and poor home conditions were hardly conducive to satisfactory development. The country as a whole was changing; Israel has become more industrialized, and greater technological knowledge is required to earn a living. Children who arrived in the country with a better education wanted to go on with their secondary schooling. Many had to learn trades to help out at home.

A department of the Jewish Agency, Youth Aliyah is geared through its absorption, health, education and psychological sections to serve the multifarious needs of immigrant children from the moment they apply to be admitted.

Intake criteria have perceptibly altered. Selective standards of age and health had to be waived for victims of the Nazis; these had to be rescued at all costs. After the World War, children's homes and youth camps were set up in devastated Europe by envoys from Israel, with the help of the American Joint Distribution Committee, to be bases for eventual immigration to Israel. The camps and homes in Europe and the detention camps in Cyprus were abandoned as soon as the State was established.

Today, hundreds of the new wards entering the country each year are unaccompanied by their families. Organizing the immigration of these unescorted young people from 40 countries is a major activity of Youth Aliyah.

Children from the ages of 13 to 16 (from 12 in the case of girls) are now accepted. Only in exceptional cases, and after exhaustive examination, are 10- and 11-year olds taken. Thirty percent of those admitted are sent to kibbutzim, sixty percent to youth villages and other educational centres and ten percent are referred to placements where more specific care and attention can be given.

There are two main groups of children in Youth Aliyah (with, of course, a fair number somewhere in between the two). There are children with a more or less normal educational background by Western standards, and children with a socially and culturally deprived background. Children with a normal education made up the overwhelming majority in earlier years. Today, such are the minority, though an important one: they have had a good schooling and are eager to continue their secondary education; so they are given the necessary assistance to do that or obtain vocational training.

Youth Aliyah has established 18 centres for vocational training. The Hadassah-Ne'urim Centre provides instruction in eleven skills from auto-mechanics and building, carpentry and electronics for boys, to sewing and weaving for girls. Youth Aliyah has also gone down to the sea with a course in seamanship at Nitzanim, its children's village near Ashdod, once a clandestine landing place for illegal immigrants.

Unlike the regular school curriculum, Youth Aliyah education has the special feature of being based on life in children's communities. Their day-to-day routine includes all those hours after class-work which are given up to general educational and cultural activities, group life, the opportunity for personal contact and friendships.

There is a very serious gap between the general development and scholastic achievements of a large section of the population that is of 'Oriental' origin, and the standards and educational achievements of most of the 'Europeans'. To bridge it is now the major challenge of the Israeli educational system. It is thought to be a main responsibility of Youth Aliyah to make its contribution to the solution of this problem.

To meet this goal, intensified psychological and social services are required. In cooperation with child guidance clinics, projects have been worked out for children with low learning ability, and Youth Aliyah's special classes at Ramat Hadassah Szold have assisted them to catch up by developing their self-confidence and enabling them to face the challenge of formal schooling, and of work routine later on in the kibbutz. Each year (now for the sixth time) over 150 children are enrolled there after careful selection and screening. The children come to Ramat Hasassah Szold at the age of 12 or 13 with a scholastic performance that children of different upbringing can normally claim at the age of 8 or 9. Yet, their educational backwardness is socially and culturally determined. Small classes in Ramat Hadassah Szold, individual care, life in the children's community, manual work in the workshops and gardens, guidance by a team of teachers, educators and psychologists, all these have contributed to the fact that after one year most of them can be placed in a normal Youth Aliyah educational setting. A similar programme for culturally deprived children is now being implemented at Kiryat Ye'arim, the Swiss Youth Aliyah village near Jerusalem.

Twenty educational supervisors supervise schools, extra-curricular activities and group work as well as the individual progress of children. Most wards are in kibbutzim and youth villages, which are administered by public bodies and not by Youth Aliyah. (All schools in Israel are under the supervision of the Ministry of Education and Culture). Six supervisors are concerned exclusively with the supervision of living quarters, hygiene and clothing.

The educational supervisor is, in effect, the representative of Youth Aliyah, its liaison officer with the educational centre; but not the only one, because personnel of the intake section, psychologists on the staff of Youth Aliyah, and personnel of the social and medical services also keep regular contact. He alone, however, has the task of encompassing all the phases of education, and it is he who guides the counsellor-instructor in his difficult task, which extends to educational and cultural activities outside the class-room.

There are from 500 to 800 children under the care of each supervisor, but, of late, the tendency has been to replace his responsibility by the collective accountability of a team made up of the psychological counsellor, the social workers and himself. Teachers bring the problems of difficult children to the supervisor, and he is the one that often has to give advice on their future and guide them into suitable occupations or trades. The children are not only coached in selecting careers or callings but are guided and assisted in the best procurement of training or opportunities for study.

The first graduates, now men and women of middle age, are settled members of the community. Most came from Eastern and Western Europe, surviving the calamity of orphanhood. It was their good fortune to find a ready welcome in the kibbutzim, where members and educators gave infinite time, patience and affection to their upbringing. A large percentage found personal satisfaction in adopting the kibbutz way of life. The girls, about 40 percent of those early charges, chose to be nurses or kindergarten teachers. Most of the boys chose work on the farms, became drivers, factory hands, laboured at building or in mines. A few entered the academic world as engineers, teachers, physicians or administrators. Youth Aliyah graduates are to be found in every walk of life in Israel. Many fought — and died — in the War of Liberation.

The youth day-centre project is a joint effort of the Ministries of Education and Culture and Labour, the Jewish Agency and Youth Aliyah for children in immigrant villages, development towns and urban slums who are past the age of compulsory education and unable to find a place in post-primary educational establishments; untrained, they have little chance to find employment and are in danger of falling into the ways of delinquency. Boys and girls from the ages of 14 to 17 attend the centres from 8 in the morning till 5 in the afternoon. They engage in general studies and acquire some manual skill — boys in woodwork or metalwork, girls in cooking or needlework. Over 12,000 young people, in the past ten years, have attended the 16 centres now in existence.

Youth Aliyah's budget covers educational, medical and psychological services, as well as a per capita payment for each child in its care. Youth Aliyah is burdened with the difficult problem of finding trained personnel — a universal problem today. It maintains seminars, religious and general, for the training of teacher-counsellors. To implement its distinctive educational programme, embracing school and extra-curricular training which is designed to develop character and inculcate the eternal values of Judaism and to educate for citizenship as well as teach the regular school subjects, Youth Aliyah, in line with modern development in education and social welfare, strives to add trained professional workers to its staff who will be able to identify themselves with the needs of their wards as closely and as selflessly as all their dedicated predecessors.

The Medical Service of Youth Aliyah

With the inception of Youth Aliyah in 1933, a Medical Service was set up to supervise the health of the children and adolescents in its care. The physicians of the Service examined children on their arrival in Israel, in the transit camps, and frequently in their countries of origin and in overseas transit centres, so as to be able to provide required medical assistance as early as possible. With the swelling of immigration and the expansion of Youth Aliyah's activities, the work of the Medical Services, too, became more extensive and more ramified. Close contacts were established with medical and educational staff wherever children were placed, in kibbutzim and educational institutions of different types. All children are insured with one of the Sick Funds, the majority with the Histadrut's Kupat Holim. The Service, however, continues to supervise their state of health and to follow up their physical development; it provides treatment and rehabilitation for the sick and handicapped and hospital care when needed; it refers sick boys and girls for recuperation to suitable sanatoria and special institutions for physical and vocational rehabilitation; it furnishes them with orthopaedic appliances, hearing aids and glasses, and arranges dental care as necessary; in the area of mental health, it acts in collaboration with the psychological and psychiatric counselling clinics of Youth Aliyah.

Changes in immigration patterns over the past thirty years, since the formation of Youth Aliyah, have modified the medical and hygienic problems with which its Medical Service has to contend. At the end of World War II, it had to cope with the young survivors of ghettos and extermination camps, many of them tuberculous, undernourished, invalid and emotionally disturbed. After 1948, with the onset of mass immigration, it had to care for children from Asia and Africa, suffering from bilharziasis and ringworm, from trachoma and filariasis and many other endemic diseases of the Middle East.

The Service conducts health education in regard to the improvement of hygienic conditions and the prevention of accidents. Seminars are organized for this purpose for the staff of youth centres; circulars and bulletins are issued, expert advice and guidance are offered to the Youth Aliyah Department's Committee for the Prevention of Accidents. All children placed in Youth Aliyah are insured against accidents, and are given medical and vocational rehabilitation, as well as due compensation, in the event of disability.

Psychological Services of Youth Aliyah

The Psychological Services are an integral part of the educational framework of Youth Aliyah. Therefore, they bear a much more direct responsibility for the welfare of individual children than is customarily assumed by psychological treatment services for their patients.

Intensive and intimate cooperation between the educational supervisors and educators on the one hand, and the psychologist, psychiatrist and social worker, on the other, is maintained towards this end. The gap usually existing between the approach of the educator and that of the psychologist is almost closed by this interdisciplinary cooperation.

The Services consist of two clinics, one in Haifa, responsible for the northern part of the country, and the other in Jerusalem, responsible for the central and southern parts. Between them, they cover an area with more than 200 placement facilities, dealing with thousands of children and hundreds of field workers, educators, parents and social welfare agencies. In addition to these two clinics, a Department for Special Education is in charge of placing children outside the regular Youth Aliyah educational settings — kibbutzim, youth villages and the like. The Department is responsible for the residential settings for disturbed adolescents, foster-family placements, rehabilitation through vocational training and other special education programmes.

The clinics are under the direction of clinical psychologists and part-time consultant psychiatrists. The rest of the staff is composed of clinical psychologists, child therapists and social workers. The total number working in both clinics is about 20. The team is guided by the principle that the child in the clinic's care must feel that all his wants are attended to by the Service. It is this approach which humanizes the contact of the worker with the child, whose confidence grows when he is conscious of the worker's sincere interest in him, embracing as much as possible his aspirations, his problems and his difficulties.

The clinics' principal liaison is with the Absorption and Education Sections of Youth Aliyah. Their function vis-à-vis the Absorption Section is the selection of the candidates for placement — as many as 1,200 to 1,500 children are referred each year for examination. The purpose is to decide by thorough personal examination and by analysis of family background, whether the child really needs to be placed with Youth Aliyah, whether placement outside the family is advisable (this refers mainly to the smaller children), whether the child is suitable for absorption within the existing scheme, whether he can adapt himself to normal group life and whether he can follow the programme of studies.

The examination is not, then, just a matter of simple selection, but a positive reorientation and an appraisal of both the child's needs and Youth Aliyah's capacity to meet them. Since the children belong to so many different types of cultures and societies, the clinics have been compelled to devise new and more adequate instruments and approaches for evaluation than those commonly available.

Thousands of the children examined might have been labelled as mentally deficient if one applied conventional methods of diagnosis. But when the clinics' methods are used, learning potential can be assessed more optimistically.

The measures taken by the clinics to make the diagnosis of a child already placed an effective point of departure for further planning can be divided into three categories:

1. Removal of the child from his group: this was very frequently done during the years prior to the development of the Service. For many children no other way has been found to solve their problems than changing their placement according to their needs and level of functioning, or in the hope that a better relationship with care-taking adults in the new environment would develop. This included the placement of deeply disturbed children in special institutions, at least in those cases where it was felt that the child could not be left within his regular group without incurring the risk of impairing and damaging the development of the group. Every change in environment, however, although it may be necessary in certain cases, is always a trauma to the child. The removal is, of course, more damaging and traumatic when the child has to be isolated behind the walls of a special institution, segregating him from a continuous and intimate access to the normal environment and its vital stimuli for healthy development.

2. Therefore, the clinics have evolved the approach of keeping the disturbed child within its normal group of peers as long as possible. During the last six years, not only has the number of children who had to be removed from their placements declined, but no special institutions are maintained any longer.

This does not mean that the number of disturbed children or children in need of special care is less. It is rather that both the Special Education Department and the clinics have elaborated more adequate methods of dealing with them in a manner that avoids hospitalization or special institutional placement.

Counselling is a most effective means to reach a very wide range of children in need. Some 50-60 placement centres enjoy this service and each centre has a counsellor who is a member of the Psychological Services in one of the clinics. He may be a psychologist, a psychiatrist, a social worker or a therapist. He visits the centre from time to time and, in the course of a full day, he meets the members of the staff, and gets a clear picture of the educational state of the place; he may also have contact with a great number of other people involved in the education of the children. This not only makes him a well-informed person in immediate touch with the reality of the environment of the child, but enables him to confront the staff with their own divergent aspects and the different opinions on a given child or on the specific problem on which he has been called to give advice. In this fashion, the counselling process does not only tackle the problems of the individual child, but introduces the more general ideas and principles so important in a preventive approach to mental health.

3. The therapy offered to children in need of direct treatment is not done in a vacuum of a therapeutic room, but encompasses all aspects of the life of the child; about 150-200 children are under this type of treatment, annually, in the clinics. The joint programme of direct therapy given by psychologists, therapists and psychiatric social workers at the clinic (under the supervision of senior workers or psychiatrists), plus the intensive counselling orientated towards modifying the environment and making it more responsive to the needs of the child, as well as work with the parents or other existing kin of the child, enable the child to overcome his difficulties in a great number of cases.

Considering that the children are very often without families at all, or without families which can assume that charge, the Psychological Services cannot confine themselves to giving good advice; they are bound to involve themselves in a most positive and active way in the destiny of the child.

MATAV—Homemaker Service

The Matav Homemaker Service Association was founded by public agencies in July 1958. Its main purpose is to provide a trained homemaker to run the house and care for children and other members of the family, and for persons living alone, in the following circumstances: a short or long-term absence of the mother owing to child-birth, because of illness or, even when she is at home, her domestic incapacitation; in cases of chronic illness; in cases of sudden illness; in cases of aged or enfeebled persons; where backward or handicapped children live at home.

The Service helps to keep the family unit intact, to minimize the shock to a baby or child when the mother is sick, and to enable children to continue their usual mode of life in familiar surroundings instead of being placed outside their homes. It alleviates the misery of ailing, handicapped, aged and solitary persons, who can stay at home in an atmosphere they are used to, while receiving the necessary care.

Organization

As in most countries, the Service was set up as a public corporation. Among its members are the Ministries of Social Welfare and of Health, Malben, Kupat Holim, the Israel Cancer Association, the Organization of Immigrants from Central Europe, the Women's International Zionist Organization (WIZO), and the Working Women's Organization of Hapoel Ha-mizrachi, and the Wirzweiler Foundation of America.

Activities

The Service recruits and trains candidates to be homemakers: only women whose personality and ability render them suitable are taken on. Before entering the Service, each must pass a training course organized by the Service in co-operation with the Training Department of the Ministry of Labour. The on-the-job performance of the homemaker is supervised by the Service.

Homemakers are paid by the Service, which collects charges calculated according to the means of the person served.

The Association is a member of the International Council for Homehelp Services.

PART 5

*Health Professions –
Education and Training*

At the beginning of 1966, there were almost 6,000 practising physicians in Israel, and the ratio of doctors to population was about 1:400. Approximately 50 per cent of these immigrated to Israel after the establishment of the State, and about 85 per cent had previously practised medicine in their countries of origin. The extraordinarily heterogeneous composition of Israel's medical profession is unique. The 1,000 graduates of the Hebrew University-Hadassah Medical School constitute the largest group, about 15 per cent of the total, with a uniform education.

In spite of the high ratio of doctors to population, the need for an Israeli medical school is manifest. In addition to the maintenance of a wide network of medical services in a country of mass immigration, and to the provision of replacements for retiring doctors, other important functions require attention.

A medical school in Israel has to educate a generation of young doctors rooted in local problems and aware of the health needs of the country. Furthermore, a cadre with high scientific standards is required to carry out basic and applied research in biology and medicine.

Although closely identified with the country's problems, universities in Israel are independent academic institutions. This relationship ensures freedom of action and permits medical faculties an uncommitted position vis-à-vis other medical institutions in the country, whether governmental, public or private. It also affects the curriculum. The Medical School is called upon not merely to educate general practitioners and specialists, scientific doctors or public-health-minded physicians, but rather to produce a physician with a balanced basic training, rendering him capable, after graduation, of following one of these or other careers in modern medicine.

The Hebrew University-Hadassah Medical School was opened in 1949, but the first step towards the establishment of a Faculty of Medicine was taken as early as 1924, when the American Jewish Physicians' Committee endowed an Institute of Microbiology in the Faculty of Science at the University. After that date, one department after another, devoted to medical research, was added to the Faculty of Science. In 1936, the projected Faculty of Medicine was taken a step further when the University and the Hadassah Medical Organization signed an agreement for the establishment of a University-Hadassah Medical Centre on Mount Scopus. It was to comprise three units: the University medical research laboratories, constituting the School for Post-graduate Study and Research, the Rothschild-Hadassah hospital, and the Hadassah School of Nursing (subsequently named after the late Henrietta

Szold). The Hadassah Organization undertook to build premises for its hospital (which was given the status of a University institution in 1939) and the School of Nursing on Mount Scopus. The University, on its part, agreed to erect the Ratnoff Building to house the medical research laboratories, and to expand them in accordance with the needs of the Medical Centre.

On completion of the Medical Centre in 1939, a Pre-Faculty of Medicine was organized, uniting the medical research laboratories of the University and clinical departments of the Hadassah hospital. In 1949, the Pre-Faculty became the Faculty of Medicine. In actual fact, the conversion of the Pre-Faculty into a full Faculty — the Hebrew University-Hadassah Medical School — and its inauguration had been planned to take place in 1948. The intervention of the War of Liberation and the inaccessibility of the University premises and the Hadassah hospital on Mount Scopus ruled out this possibility. But circumstances soon necessitated the opening of the School in town, despite the inconvenient conditions under which both institutions were working.

The shortage of young physicians in Israel, which became apparent after the emergence of the State, prompted the Government to request the Hebrew University and the Hadassah Organization to open the School with the least possible delay. Housing difficulties and, in particular, the inadequacy at that stage of the laboratories for the basic sciences, made it impossible to introduce the entire medical course at the beginning: it was, therefore, decided to start with courses in the second pre-clinical year. The first students to be admitted were young people who had interrupted their medical studies abroad in order to serve in the Israel Defence Forces during the War of Liberation. With them were admitted a number of new immigrants, all of whom had completed abroad at least the first three years of their medical training. Later, at various stages, other courses were added and, since 1952, the School has offered its students a complete medical course.

In May 1952, the first degrees of Doctor of Medicine (M.D.) were conferred on 63 graduates of the School.

In 1956, the course for students majoring in microbiology was transferred from the Faculty of Science to the Faculty of Medicine. In 1966, an Institute of Microbiology was established within the Medical Faculty. Teaching and research in all the fields of microbiology are now centralized in the Institute, which is composed of the Departments of Bacteriology, Clinical Microbiology, Virology, Parasitology, Microbiological Chemistry, Immunology, and a number of units covering special fields of microbiology.

The Institute has its own organization and a rotating chairmanship. The chairmen of departments and units are also elected by members of the staff on a basis of rotation.

The Institute is responsible for teaching the subjects of microbiology to all students of medicine, dentistry and pharmacy. Its special task is to give a course for 25 students majoring in microbiology (M.Sc.) and to teach microbiology to a large number of students of biology at the Faculty of Science.

Graduate Course in Basic Medical Sciences

In 1955, a special course was inaugurated for a limited number of students, leading to the degree of Master of Medical Sciences. It is aimed at attracting gifted young students to a career of teaching and research in the basic medical sciences.

Students with the degree of B.Sc. from the Science Faculty, or medical students after completion of the first four years (pre-medical and pre-clinical) of the medical curriculum, are accepted. The major subjects are: Anatomy, Physiology, Biochemistry, Pharmacology and Pathology.

Medical Course for Students from Developing Countries

For the last ten years, Israel, among other nations, has been making its contribution to teaching health personnel from developing countries through local post-graduate programmes and by promoting health programmes overseas in Africa, Asia and Latin America.

In 1961, the Government of Israel and the Hebrew University-Hadassah Medical School, mindful of a great need, decided to start an undergraduate medical course for students from developing countries. Funds were provided by the Government, and fellowships were given to many of the students by the World Health Organization. The course began in November 1961, with seventeen students from eight countries. Since then, three more classes were enrolled. The total number of students is now more than seventy and they come from eighteen countries of Africa and Asia. The first class will graduate in 1968.

A special Faculty Committee was set up to plan the six-year course, the internship year to be spent in the student's country of origin. Candidates were carefully selected by regional committees with the participation of regional officers of the WHO. As the shortage of doctors in developing countries is very serious, Israel obviously can contribute only modestly to the solution of this vast problem. The ultimate solution clearly lies in the establishment of national medical schools in each country. With this end in view, one of the chief objectives of the Israeli course is to train some of these students to be future teachers of medicine rather than practitioners of it. If even a small number of teachers in the basic sciences were to emerge from each class, this would be of real significance for medical education in their own countries. The project offers such outstanding students the opportunity to spend an additional year

or two, specializing in a pre-clinical field with a view to making a career in medical teaching.

Course for Laboratory Technicians

In 1956, a training course for laboratory technicians was inaugurated jointly by the Hebrew University-Hadassah Medical School and the Hadassah-Seligsberg Vocational School. After passing examinations at the end of the special course conducted in the Seligsberg School, students are assigned to laboratories in the Medical School and other recognized institutions for one year of practical work. On successful completion of the entire course, they are awarded the diploma of a medical technologist.

Controlling Bodies

The Medical School is a joint undertaking of the Hebrew University and Hadassah. The first 'agreement of affiliation and relationship' was signed in 1946 and, in 1949 and 1964, additional agreements were concluded. According to these agreements, all the appropriate facilities available to the Hebrew University and Hadassah were to be placed at the disposal of the Medical School for teaching and research. Hadassah undertook to maintain the Rothschild-Hadassah University hospital on a University hospital level; while the University undertook to instruct the medical students in the basic sciences to a standard satisfactory to the Medical School Board of Management.

The Hebrew University, which was opened in 1925, is an independent institution. Supreme authority in matters of major policy is vested in the Board of Governors, a body consisting of prominent members of the Jewish communities of many countries as well as of residents of Israel. An Executive Council with its seat in Israel is responsible for the actual conduct of the University's affairs, while the Senate is the supreme academic body. The Senate enjoys a large measure of autonomy; but its decisions in matters of general University policy are subject to the approval of the Executive Council and, when necessary, of the Board of Governors.

The President of the University is elected by the Board of Governors for a period of four years and is eligible for re-election. The Rector is the academic head of the University and is elected by the Senate for a period of two years, but may be re-elected for a further two years. The Rector acts as Chairman of the Senate and its Standing Committee, and is *ex-officio* a member of the Executive Council and of the Board of Governors.

The Hebrew University now has the following Faculties: Humanities, Science, Medicine (including Pharmacy) Dentistry, Law, Agriculture, Social Sciences; and Schools of Education and Social Work.

Administration

The Board of Management is a joint body of the Hebrew University and the Hadassah Medical Organization. It is responsible for the policy of the Medical School and the School of Dentistry. It also administers the financial affairs of the Schools within the limits of a maintenance budget agreed upon by the contracting parties.

The Joint Board of Management is composed of four representatives of the University, including the President (who serves as Chairman of the Board) and the Rector; four representatives of the Hadassah Medical Organization, including its Director-General (who serves as Deputy Chairman); two members of the Medical Faculty, representing respectively the pre-clinical and clinical subjects, of whom one is the Dean; the Associate Dean; the Dean of the School of Dentistry; and one representative each of the Ministry of Health and the Ministry of Education and Culture.

The accepted procedure of the University for appointments and promotions also applies to the Medical School.

The Medical Faculty Board deals with the curriculum, general teaching arrangements, admission of students, and research activities of departments. It also initiates the procedure leading to new academic appointments. It is composed of all professors, associate professors and senior lecturers working in the Faculty, together with representatives of the lecturers. It is presided over by the Dean of the Faculty, who is elected by the Board for a period of two years, after which he is eligible for re-election for a further two years. The Dean, who is a senior member of the teaching staff, may devote only part of his time to the Medical School; the Associate Dean is appointed by the Board of Management as a permanent full-time officer. Recently, the University appointed a representative in the Medical Centre, whose task it is to coordinate the University's administrative responsibilities in the different Schools located in the Medical Centre.

A Medical Advisory Board in the United States of the University and Hadassah, consisting of eminent members of the medical profession in various disciplines, advises the Board of Management.

The Medical Centre

When, in 1948, Mount Scopus became inaccessible, the Medical Centre was evacuated from its large new quarters there and transferred to several provisional premises in Jerusalem. None was at that time suitable for the needs of a modern medical school. Considerable funds and efforts had to be invested to provide adequate housing for the Hadassah-University hospital and the pre-clinical section of the Medical School, with its departments, research labora-

tories, lecture halls, teaching laboratories, store-rooms, animal houses, workshops, inter-departmental services and administrative offices.

In June 1952, the corner-stone was laid of a new building for the Medical Centre of the Hadassah Medical Organization and the Hebrew University near Ein Kerem. The hospital was transferred to the new Centre in 1961, and the basic science teaching and research laboratories were transferred in 1964.

The Centre accommodates in one building the School of Medicine, the Hadassah-University hospital, the Etta Rosensohn Out-patient Clinics, clinical and pre-clinical research laboratories, the medical library, lecture halls, the Shaitlis Auditorium and the administrative offices of the Medical School and the Hadassah Medical Organization in Israel. The Faculty of Dentistry, the School of Pharmacy, the Henrietta Szold School of Nursing and the Mother-and-Child Pavilion are situated in near-by buildings. The Ein Kerem site, located about eight kilometres west of Jerusalem, consists of approximately 1,200 dunams (about 300 acres).

The *Julius Jarcho Medical Library* is largely the creation of a distinguished New York physician of that name. For nearly forty years he had devoted himself single-mindedly to the voluntary task of providing the Jewish National and University Library and the medical profession in Israel with the best recent medical literature. In 1955, after numerous difficulties, spacious quarters were obtained for the Medical Library, which now comprises about 100,000 volumes and periodicals, as well as current issues of over 2,000 medical journals. A microfilm and a microcard reader are also available.

The *Dr. Harry Friedenwald Collection* on medical history, in particular on Jews in medicine, is in the possession of the Jewish National and University Library.

The Teachers

A central problem of every progressive medical school is how to attract capable young teachers, and how to provide them with adequate conditions for their work. The School's aim is to combine in one person the tasks of teaching and research. Both functions are essential. The number of Hebrew University graduates who join the Faculty is increasing year by year. They play a decisive role in shaping the future of the Faculty, by sharing with the senior members the responsibility for all academic matters. In addition, some outstanding senior teachers and scientists from abroad have also joined.

Another factor which contributes to good teaching and research is the fact that the Faculty is staffed by full-time academic personnel. Only clinicians of high academic rank enjoy the privilege of a limited consultative private practice in the periphery of the hospital. This also applies to the majority of

affiliated hospitals outside Jerusalem, where many physicians devote themselves to undergraduate and post-graduate teaching.

To offset the isolation from the great centres of medical and scientific research in Europe and America, an attempt is made to secure as many fellowships as possible for study abroad. Thus more than 300 members of the School have been sent abroad for varying periods of time during the past few years.

To attract more undergraduates to the basic medical sciences, two experiments have been introduced by the Faculty. In one, outstanding students are enabled to spend the fifth year of their studies doing research in one of the pre-clinical departments of the School. It is hoped that, on completion of their studies, some of them will rejoin the basic science departments, or will at least continue throughout their clinical careers to maintain close relations with the research laboratories. For those in the Hadassah-University hospital, continued scientific training after graduation is safeguarded by obligatory work in basic science during their residence. The second experiment is the course, leading to a degree of Master in Medical Sciences, for Bachelors of Science graduating from the Faculty of Science. It is still too early to evaluate the results of these experiments.

The friendly and informal relationship between teachers and students is worthy of comment. This has come about as a result of the close contact established when teaching is done in small groups. There is occasionally some abuse of this informality by the less mature students, but on the whole the relationship, based on mutual respect, is one of the most valuable educational attainments achieved by the Faculty.

The Students

The Israeli student seems to be, on the whole, mature, to have clearly defined goals and to work hard. He devotes most of his time, energy and zeal to study. The teaching schedule is 40 hours a week, and the academic year is of almost 40 weeks' duration. Despite the extensive help given to the students through the Stipends and Loan Fund, the majority of students must work hard to make a living, and many of them are married and have children.

From the very beginning, the size of the classes has been limited and students have been rigidly selected. Only 80 students a year are admitted out of more than 500 candidates. It is, thus, difficult to become a medical student in Israel, but, once admitted, a student is provided with maximal facilities — books, microscopes, slides, and other aids. The ratio of failure is very low, and practically every student admitted graduates after seven years' training.

Many of the students are new immigrants from Eastern European countries and from Asia and North Africa. Most have completed part of their cur-

riculum in their countries of origin. Owing to differences in teaching methods and curricula, it is not an easy task to integrate students with such varied backgrounds into the regular classes. During the past ten years, about 120 such students have been admitted, and most have successfully continued their studies.

About 30 Arab and Druze students, fully integrated in their respective classes, are studying in the Medical Faculty.

Curriculum and Teaching Methods

The medical course covers a period of six years of study and one year of compulsory rotating internship in the Hadassah-University hospital or in one of the affiliated hospitals under the control of the Faculty. Only at the end of this seventh year, and after presenting his thesis, does the graduate obtain the M.D. degree. All the instruction is given in Hebrew, knowledge of which is a pre-requisite for admission.

Students of Israeli high schools graduate at the age of eighteen. The Medical School provides pre-medical training during the first year and a half, consisting of the study of biology, physics and chemistry. In addition, courses in psychology, general physiology, genetics, sociology, mathematics and English are given. The study of at least one subject in the humanities is compulsory. Pre-clinical students start with anatomy. During the two and a half pre-clinical years, anatomy is followed by physiology, biochemistry, microbiology, pathology, pharmacology, and parasitology.

At the end of this stage of training, courses in physical diagnosis, social medicine, family health, and introductory courses in medicine and psychiatry are given. A special course in nursing has also been introduced.

During the first clinical year, the fifth year of studies, the students work in rotation in the hospital wards as clinical clerks. Three weeks are devoted exclusively to preventive and social medicine.

The second clinical year is also spent in rotation, mainly in the out-patient departments. A plan recently adopted includes work in a family health centre in the rotation programme. It is hoped that this type of instruction will help medical students to attain a more comprehensive approach to medicine. During each year of the clinical period, the student is given a month for electives. He is encouraged to leave the Hadassah-University hospital and to spend this period in another hospital or public health agency, or with a general practitioner. It is true that students never see a general practitioner at work during their clinical training in the hospital. Therefore, three years ago, a programme of teaching general practice was introduced. During the last clinical year, each

student spends one month in apprenticeship with a selected practitioner, mainly in the rural areas.

Following his six-year medical course, and his final examination, the student is recommended for a year of internship in a recognized hospital. A full month during this period is devoted to work in public health and a report on this is submitted by the student to the Professor of Public Health. This has proved to be an efficient educational instrument. Several reports, some of them already published, testify to the growing awareness and understanding of public health problems by the graduates.

In general, the structure of the curriculum resembles the European pattern of a seven-year training programme, including the pre-medical period and the year of internship in one integrated medical course. On the other hand, the teaching methods are conceived in keeping with American principles. Laboratory work in the pre-clinical period and bedside teaching and clinical clerkship during the final years are emphasized. Comparatively little time is devoted to lectures. The students are taught mainly in small groups and in numerous seminars.

*Integration of Teaching and Research **

Teaching and research are two aspects of the same discipline. In putting this principle into practice, the Medical School has made a decisive contribution to the general standard of medicine in Israel.

It is true that the medical teacher — pre-clinical as well as clinical — may develop his pedagogical and research abilities to varying degrees. The Faculty is interested in employing teachers who devote themselves to research without prejudicing instruction, and who know how to use research as a tool for instruction and guidance.

On the other hand, the clinician who devotes himself solely to work in the hospital and to teaching, and finds no time for research, is bound to decline in his educational and professional abilities. The dynamic progress of medicine nowadays is due to the advancement of the basic sciences, and a clinician isolated from them cannot succeed in a modern medical school.

Fortunately, there is a tendency among the younger generation of clinicians in Israel to maintain their scientific ties with pre-clinical laboratories after taking up medical practice. This, in turn, has furthered the development of a scientific atmosphere in the medical institutions in which these doctors work, even if their foremost responsibilities do not lie in teaching or research. This new pattern has brought about a decided improvement in the field of medical service to the patient, in that it attracts younger, more efficient doctors who are genuinely interested in, and devoted to, their vocation.

* See also *Medical and Biological Research in Israel*, edited by Moshe Prywes, 1960. Distributors: Rubin Mass, Jerusalem, Grune and Stratton, New York (for the Americas).

THE TEL AVIV UNIVERSITY MEDICAL SCHOOL

The School was opened in 1964, after a short period of preparation. In view of the availability of clinical facilities and, by contrast, the non-availability of sufficient basic science facilities, it was decided to repatriate Israeli students who had completed three or four years of study abroad and to admit them to the fourth (pre-clinical) and fifth (first clinical) year respectively. It was considered that, when the Medical School would have become better organized and the University further developed, students would be admitted to the first-year class, and, from then on, a first-year class would be enrolled annually. Even when the six-years' curriculum would be functioning completely, admission of repatriate students to the fourth and fifth years would be continued for some time.

Structure of the School

A broad plan, comprising 'para-medical' units also, has been conceived as follows: Medical School; Institute of Public Health; Dental School; School of Pharmacy; School of Veterinary Medicine; and the already existing Faculty of Continuing Medical Education. Para-Medical Schools — Physical and Occupational Therapy; Speech and Hearing Therapy; Social Work; Nursing.

A central building would be put up on the University campus at Ramat-Aviv to house basic science departments — morphological and physiological sciences, preventive medicine and public health.

The building of a single Medical School hospital for undergraduate teaching was excluded for financial reasons and would, in fact, defeat one of the principal aims of the School, namely, to raise the standard of existing institutions by the introduction of undergraduate teaching.

Since pre-clinical (fourth year) and clinical (fifth and sixth years) teaching would be carried out in the affiliated institutions, chairmen were to be appointed for twenty-three branches, with the duty to coordinate teaching in their respective fields of responsibility; the appointments would be in rotation to ensure a dynamic curriculum and to avoid direction by any one hospital or department in perpetuity. The following institutions have been affiliated: Tel Hashomer Government hospital; Beilinson Medical Centre of Kupat Holim, comprising Beilinson, Sharon and Geha hospitals in Petah Tikva; Tel Aviv Municipal hospitals: Ichilov, Hadassah and Kirya hospitals in Tel Aviv; Donolo-Zahalon Government hospitals in Yafo; Shalvata psychiatric hospital of Kupat Holim in Magdiel; Loewenstein rehabilitation centre of Kupat Holim in Ra'anana; Kupat Holim mental health clinic in Ramat Hen.

A curriculum committee was appointed, as well as an advisory committee to the Dean, including the directors of the affiliated hospitals, the chief of the

Medical Corps of the Israel Defence Forces, the chairman of the Medical Board of Kupat Holim and a number of eminent physicians. The curriculum committee deals with all organizational matters affecting the affiliated institutions.

A Faculty was constituted, consisting of the chairman and the members of the curriculum committee, the members of the Dean's advisory committee and the Director-General of the Ministry of Health as member *ex officio*.

Teaching started on 1 November 1964, with thirty students in the fourth year and twenty-three in the fifth; forty-four of them had returned from fourteen universities in eight European countries, and nine students had come from the Hebrew University-Hadassah Medical School in Jerusalem. In the academic year 1965/66, the number of students was ninety-two in the fourth to sixth years. It rose to one hundred and twenty-four in 1966/67.

Until 1966, all students admitted to the fourth, fifth and sixth year classes had begun their medical studies abroad, except for the few transfers from the Hebrew University. Experience had taught that unevenness of training of students in overseas universities involved considerable difficulties in subsequent teaching in the new School. This could be solved satisfactorily only when the main body of students took their basic first years in the country. Utilization of the existing basic science departments in the University, and provision of temporary facilities for anatomy, histology, embryology, physiology and pharmacology at the affiliated institutions until the central campus building is ready, made it possible to open the first-year class in autumn 1966, and to accept seventy-seven students.

Curriculum

In preparing this, stress was laid on the depth of basic science teaching—mathematics, physics and chemistry, biology; the importance of behavioural sciences—psychology, sociology, cultural anthropology; and on English. A special point was made of the integration of teaching of psychology in the psychiatry section, using the services of psychologists closely associated with the field of medicine.

Admission

Three principles were laid down for admission, with the clear understanding that they would be reconsidered and might be changed later on in the light of experience. In view of the unsatisfactory grounding in science of high-school pupils who, at the age of fifteen, had entered the humanistic division, and the experience of their generally inadequate performance in the Faculty of Sciences, it was decided to accept, for the year 1966, only graduates from

a high-school division of science or biology. As a requisite for admission, a competitive examination, adopted as a rule by other Faculties in Israel, was held. The value of this examination, as an instantaneous tension-performance, is much disputed. Three other criteria were therefore applied: grades obtained in matriculation, taking mathematics, physics, chemistry and biology into account; psychological tests, carried out by a team of psychologists of the psychiatry section; and three separate interviews, each held by a different staff member, one being a senior teacher.

Affiliated Research Institutes

A number of research institutes, mainly those of the Tel Hashomer and the Beilinson hospitals, have been affiliated academically to the School. Administratively, they belong to the affiliated medical institutions, but the University extends partial support for their staff and equipment.

Overseas Medical Advisory Board

An Advisory Board, its members representing important American medical schools, was formed in the United States in 1966. Its main task will be to counsel in matters of curriculum and structure, to channel training and research fellowships for the School's staff, and to develop exchange programmes for teachers and students between the School and its counterparts abroad.

POSTGRADUATE MEDICAL EDUCATION

Postgraduate medical education was, at first, undertaken by the Israel Medical Association by holding regular scientific meetings in its local branches and country-wide scientific conventions every other year. The Association's branches in Tel Aviv, Jerusalem and Haifa hold weekly meetings, while the Jerusalem Academy of Medicine has been established as a central institution of the Association to "coordinate activities concerned with the improvement of medicine and public health". The Academy's activities include regular lectures and symposia, meetings of study committees on infant mortality, poisons and rheumatic fever control, marriage counselling and popular lectures on public health. The Scientific Council of the Association — in cooperation with local scientific committees — organizes lectures in the smaller branches.

In 1951, the Central Board of Kupat Holim, through its Medical Council, started an Institute for Postgraduate Training at the Beilinson hospital in Petah Tikwa.

In 1955, the Hebrew University-Hadassah Medical School established a Division of Postgraduate Studies, in cooperation with the Ministry of Health, Kupat Holim, the Medical Association, Malben and local hospitals, with the aim of organizing lectures and symposia for general practitioners and specialists, in which members of the Faculty and others take part.

In 1962, the Institute of Postgraduate Medical Training of the Hebrew University-Hadassah Medical School and Kupat Holim was founded to help in absorbing immigrant physicians with divergent backgrounds and qualifications.

In 1963, the University of Tel Aviv opened a Faculty for Continuing Medical Education for physicians in that area.

Present State of Postgraduate Education

Within the Medical Association, postgraduate education is effected by means of regular case presentations in its branches, week-end symposia and periodical meetings of the twenty-four specialty societies.

Local courses are intended to bring to rural practitioners, once a month, a team usually consisting of a pre-clinical teacher, a clinician and a public health officer to discuss medical subjects from different angles.

Regional hospitals invite doctors practising in their neighbourhood to take part in clinical staff meetings, in clinical-pathological conferences and in ward rounds.

The continuing, life-long postgraduate education of the general practitioner or family physician is the central problem of postgraduate education. In urban areas and the larger rural centres, most internists and paediatricians work as family physicians for adults and children, respectively, and only a few as consultants.

The rapid progress in medicine makes it urgent for every physician to keep abreast of advances in diagnostic and therapeutic methods such as antibiotics, steroid-therapy and psychopharmacy; the increasing importance of side-effects of potent drugs; collagen and auto-immune diseases; the modern diagnostic methods in cardiology and haematology; the expanding practical importance of virological diagnosis; and genetic analysis.

Local conditions require that amoebiasis, leprosy, leptospirosis, eradication of malaria, snake-bite and scorpion-sting and the influence of hot climate be dealt with. The increasingly aging population makes gerontology and geriatrics vital topics for postgraduate courses.

Such courses have practical educational value only if they give the doctor a deeper understanding of the scientific basis of diagnosis and therapy.

Subjects of public health interest such as prophylactic use of antimicrobial drugs and vaccines, biostatistics, early cancer detection, drug addiction, occupational hazards and absenteeism are an essential part of the programme.

Most physicians lack appropriate training in psychology and psychiatry, but, in their practice, they are confronted daily with psychosomatic problems. Therefore, continuing courses on psychological problems in medical practice are held.

The Institute of Postgraduate Medical Training of the Hebrew University-Hadassah Medical School and Kupat Holim

The Institute was founded in 1962 by agreement between the Hebrew University, the Hadassah Medical Organization and Kupat Holim. The three parties had long been aware of the need for it. Mass immigration has posed numerous problems relative to the absorption of physicians of diverse backgrounds and qualifications. The policy of encouraging immigration implies the necessity of permitting every physician to practise the moment he arrives, without subjecting him to any preliminary test or examination.

Also, it was felt that veteran physicians, who had been working in outlying villages for many years without regular contact with medical centres, should be enabled to keep abreast of recent developments and changes. Unlike their colleagues in the larger towns, these physicians must provide their patients with adequate treatment in many fields of medicine, usually without consulting a specialist. Specialists, too, must be given the opportunity to improve their skills and enlarge their knowledge of new methods.

About 2,000 physicians have immigrated during the last 14 years, and the problem of standardizing their training and experience has kept growing.

Kupat Holim employs about 2,500 physicians, of whom 1,100 are general practitioners.

Kupat Holim's hospitals and central clinics have always offered some form of postgraduate education to their physicians, such as individual training in hospital departments, group training in district centres, or case presentations and lectures. Realizing that a more intensive and continuous curriculum was required, the Central Board in 1951 approved a proposal of its Medical Council to establish an Institute for Postgraduate Training at the Beilinson hospital in Petah Tikva, which, with the help of the departments and laboratories of the hospital, would conduct postgraduate courses for general practitioners and specialists. From the very beginning, the main task was seen to be the holding of six-week refresher courses for general practitioners. Accordingly, Kupat Holim permits every one of its general practitioners to attend a course once every three years, relieving him of all duties for the period.

Between September 1951 and July 1962, the Institute had held 35 such courses, each limited to 15 students, which means that more than 400 general practitioners were trained in those eleven years. General practitioners and specialists have also been given the opportunity to attend courses of from 5 to 10 days' duration in endocrinology, haematology, gastroenterology, psychosomatic and social aspects of medicine and other specialties.

Recently arrived physicians were offered special courses, the purpose of which was to acquaint them with the general local conditions, diseases and clinical methods. The first course was held in 1961; three more, each lasting three months and with 20 physicians in each, were held in 1961 and 1962.

The mounting need for postgraduate training and for incorporation of pre-clinical studies in the teaching of medical practice led to the agreement to establish the joint University Institute, which embraced the Institute at the Beilinson hospital.

The University Institute is open to all physicians whether or not attached to the sponsoring institutions. It utilizes facilities of the Hadassah-University hospital and Medical School as well as of Kupat Holim, comprising the Beilinson and Sharon hospitals (Beilinson Medical Centre), the Kaplan hospital in Rehovot, the central hospital for the Negev in Be'er Sheva and the Afula central hospital in the Emek. The outpatient departments and public health institutions of Kupat Holim and Hadassah are also available for teaching purposes.

The plan of studies is based on the principle that the amount of additional scientific instruction, which is an essential part of postgraduate training, is so large, and drawn from so many sources, that its presentation can only be accomplished optimally in an organized course. Each course is designed for a small group, not exceeding twenty, and, during it, the physicians devote all their time to study. They must, therefore, relinquish their regular work and immerse themselves in a university study atmosphere. With the cooperation and partnership of the basic and clinical faculties, the Institute seeks to present instruction which integrates theory and practice closely. Physicians who fulfil the requirements of a course are awarded certificates.

Conditions oblige the Institute to limit the length of courses to a maximum of three months: few physicians can give up their work for longer periods. Furthermore, teaching has been decentralized to allow physicians, as far as possible, to attend courses in hospitals near their homes, and maintain contact with those hospitals after the course. The large pool of teachers permits frequent visits of specialists in areas that are not sufficiently represented in a particular hospital.

The following courses have been established so far:

A. *Two months' course for instructors in general medical practice*

The purpose here is to train a selected group of general practitioners as instructors in general medicine. It comprises lectures, panel discussions, seminars, ward rounds, clinical-pathological conferences and visits to specialized institutions. Those taking part are provided with an informative summary of every lecture. The disciplines represented are: internal medicine, paediatrics, surgery, ophthalmology, dermatology, neurology, oto-rhino-laryngology, gynaecology, psychiatry, social medicine and public health. Stress is laid on the problems of the patient before entering and after discharge from the hospital. The academic day includes seven to eight hours of study. Round-table discussions are held and films shown in the evenings, twice a week.

After the course, graduates are assigned the task of instructing physicians—recent immigrants—during their work in outpatient departments (see B below).

B. *Three months' course for recently immigrated general practitioners*

This is attended by arrivals of the preceding year. They first spend three to five months in an *ulpan* (intensive Hebrew language course) to acquire a basic knowledge of Hebrew.

The plan includes two months' work in a hospital and one month in a general outpatient department in a small town or village. The two hospital months are subdivided as follows: one month in the department of internal medicine and the casualty department; two weeks in the department of paediatrics, two to three weeks in the specialized outpatient clinics including surgery, orthopaedics, dermatology, ophthalmology and oto-rhino-laryngology. Work in the departments includes examination, presentation and discussion of cases. Two to three lectures, seminars or panel discussions are held each day.

About 600 physicians have taken part in the courses during the Institution's first four years. A handicap to multiplying the number has been the difficulty of replacing the physicians temporarily at their places of work during the longer courses. Another limiting factor is the financial sacrifice which any participant must make.

The Institute is governed by a Board of Management, a joint body of the Medical School, Hadassah and Kupat Holim. The Director of the Institute is responsible for the implementation of all educational, scientific and administrative activities as formulated by the Board of Management and Postgraduate Committee. The Committee deals with matters relative to the curriculum and methods of teaching. Regional curriculum committees are responsible for work in the several hospitals.

The third month is spent in a general outpatient clinic under the direct supervision and guidance of an instructor who has passed course A. During this month, the physician also becomes acquainted with local pharmacological and administrative problems, and accompanies the instructor on visits to private homes, factories and mother-and- child health stations.

Throughout, one day a week is devoted to discussions of selected topics in social medicine and public health, as well as to laboratory demonstrations. Social aspects of epidemiological problems, occupational and environmental health, organization of medical practice and health insurance are emphasized. Medical demography, psychological and general educational problems are debated. Hebrew lessons are given daily. Three tours are organized to medical institutions, including the Hadassah-University hospital in Jerusalem.

C. Six weeks' course for general practitioners

This course is for those who have practised in Israel at least three years; it is essentially a refresher course and aims at presenting advances in medicine. The six weeks are subdivided as follows: three weeks in the department of internal medicine, one week in paediatrics, one in outpatient clinics, and one elective. The elective week has been introduced to satisfy individual needs, since participants usually make up a heterogeneous group.

Teaching is mostly semi-active, meaning that ward rounds are, as a rule, conducted by a senior instructor who also leads the discussions. Case presentations and discussions by participants are included. Three to four lectures, panel discussions or demonstrations of new techniques take place every day.

D. One to two weeks' courses for general practitioners and specialists

These are designed to present a comprehensive review of the developments in a particular field of the basic or clinical medical sciences, or to give the general practitioners an opportunity to spend a short time working actively and under supervision in some medical specialty. A series of courses is held in immediate succession, to enable those who wish to do so attend as many as they desire.

E. Training of fellows

Fellows (both local and foreign) are accepted in the departments and laboratories of the Hebrew University-Hadassah Medical School, the Hadassah-University hospital and the Beilinson Medical Centre. Trainees who spend six months or more there and whose work is considered satisfactory are entitled to a certificate from the Institute.

*Postgraduate Studies in Public Health at the Hebrew University—
Hadassah Medical School*

In 1959, a special Project in Social Medicine and Public Health was set up within the Hebrew University-Hadassah Medical School and the Hadassah Medical Organization for the purpose of furthering education in public health. It was sponsored, as well, by the World Health Organization and developed in close association with the Ministry of Health.

When the Project was wound up, its activities were incorporated, in the main, in the reconstituted Haim Yassky Department of Social Medicine of the Medical School.

The Department is made up of the following units:

Epidemiology and Research in Social Medicine; Public Health Administration; Maternal and Child Health; Family Health; Health Education; Public Health Nursing; Community Health Centre; A programme for after-care of discharged hospital patients.

Additional units were established in conjunction with other departments of the Medical School, Hadassah and the Ministry of Health. They include Organization of Medical Care and Hospital Administration; Occupational Health; Environmental Sanitation; Control of Communicable Diseases; Care of the Chronic Sick and Aged; Nutrition; and Mental Health.

Outline of Studies in Social Medicine and Public Health

A formal course in Social Medicine and Public Health, leading to the degree of Master of Public Health of the Hebrew University has come into being. After approval by the Faculty of Medicine and the Senate of the University, that curriculum was instituted by the Project, and the first course commenced in October 1960.

Objectives of the Training Programme

The course is designed to serve the following types of enrollment and their needs:

(1) *For physicians*

- (a) For those wishing to specialize in social medicine, public health or medical administration.
- (b) For general practitioners desiring to further their knowledge in social medicine generally and as family and community physicians in particular, including special attention to the needs of the rural and smaller urban communities.

- (c) For physicians in other branches of medicine who wish to further their knowledge in social medicine or its related disciplines.

(2) *For other professional health workers*

To assist in the training of such, providing more advanced training for suitably experienced individuals than is at present available elsewhere in Israel. This includes engineers, nurses, health educators, social workers, as well as graduates in the natural and social sciences who wish to have further training in public health.

(3) *For research students*

To provide foundation training in social medicine and public health for those interested in carrying out research in those fields, including students of different disciplines.

(4) *For teachers of social medicine and public health*

Bearing in mind the needs not only of medical schools, but also of nursing schools and of in-service training programmes for staff of agencies of one kind and another, the training programme aims at preparing physicians and other professional health workers as teachers in social medicine and public health.

Among the requirements for admission is graduate status of the Hebrew University or another approved institution.

Since its inception, 88 students have been registered with the course.

Curriculum

The curriculum includes a number of courses mandatory for all students. In special circumstances, approval is granted for election of alternate courses which are consistent with the student's main interest and recognized for credit purposes by the University.

Among the general requirements are foundation courses as well as those bearing on kinds of action and special areas of practice in social medicine, public health and medical administration. The following subjects are compulsory: Statistics; Epidemiology; Social Medicine, including Sociology; Public Health Administration; Organization of Medical Care; Health Education; Environmental Health; Control of Communicable Diseases; Care of the Chronic Sick and Aged; Nutrition; Mental Health and Social Adjustment; Maternal and Child Health; Occupational Health.

As for the requirements for an elective major area of interest, each student elects a special area for which further studies are arranged. Acceptance of his choice is forthcoming only on approval from the head of the department, who is responsible for arranging the organization and supervision of the student's experience.

To meet the needs of specialization, the curriculum of studies includes additional special courses as well as practical experience in the elected major area of study.

Special additional course requirements are provided for the following major areas: Epidemiology; Family and Community Medicine; Health Education; Hospital Administration; Maternal and Child Health; Public Health Administration; Public Health Nursing.

Other subjects may be elected following discussion with the head of the Department and the heads of the units involved.

Practical experience in the major field of interest is provided by supervised field studies. This practical work, on which the dissertation of the student is based, is arranged separately for each student. One of the purposes of the practical experience is to develop student ability to undertake a scientific study in an area of significance for the specialty chosen. It is expected that the dissertation which each student is required to present will demonstrate his ability to undertake that.

The department has several posts for the training of physicians who wish to specialize in public health. The programme includes:

(a) Two years of practice of social medicine and public health. This has hitherto taken place in the department's own practice, and it is now planned to extend this experience, where needed, to working within other agencies.

(b) Two years in the curriculum of studies in social medicine and public health leading to the degree of Master of Public Health of the Hebrew University, associated with experience in research in some field of social medicine or public health.

(c) One year of clinical studies in a hospital or hospital laboratory.

While only a limited number of physicians have as yet been involved, the programme is a most important development in the field of public health in Israel. For the first time, training of physicians in the specialty of public health is provided on the same lines as the training in other specialties of medicine.

The Tel Aviv University Faculty of Continuing Medical Education

The Faculty has been in existence since 1962 and is being conducted by some 100 teachers on its staff. It is organized in 25 sections, including dentistry. Each section is headed by a senior teacher and operates under the guidance of the Curriculum Committee. In each section, a curriculum is offered for the respective specialty; it includes at least 5 courses in the specialty group, each course consisting of about 17 two-hour sessions and 2-3 courses in sciences basic to medicine in general or the particular branch concerned. A physician who wishes to conclude his studies formally by acquiring a postgraduate diploma can do so by passing an examination after proper attendance.

The inclusion of a number of the major branches of dentistry has drawn a group of dental practitioners, who are taking theoretical and practical courses. Since its inception, the Faculty has held over 200 courses in medicine and dentistry.

In Greater Tel Aviv, there are more than 2,000 physicians. By giving its courses in weekly evening sessions, the Faculty enables many to attend without absence from work for any length of time.

THE ISRAEL MEDICAL ASSOCIATION

In January 1912, the handful of doctors then living in Palestine — 32, to be exact — decided to found the Medical Association; its principal aims were to disseminate knowledge of medicine and hygiene among the population, to facilitate the exchange of scientific information among the physicians themselves, and to set up medical libraries.

From its inception, the Association endeavoured to abide by its founding principles. It started by concerning itself with the problems of trachoma, which was widespread in the country, and of tuberculosis, which was becoming prevalent. Its members advised on matters of hygiene, introduced health services in the schools, organized popular lectures on such topics as prevention of disease and infection, and founded a comprehensive medical library.

In 1914, when the number of physicians in the country had reached 60, the first scientific convention was held.

The First World War inevitably halted the Association's activities; many of the physicians were inducted into army service or expelled by the Turkish authorities. When the war ended, the activities of the Association were renewed

and expanded with the influx of new physicians, especially from Russia. Until then, each physician had worked independently: the Jewish doctor accompanied the new settlers to the swamplands and deserts, journeyed from village to village to treat the victims of tropical and subtropical diseases — malaria in all its stages, trachoma, amoebiasis, typhoid fever.

The 1920's witnessed the growth of medical institutions and the subsequent employment of physicians in full or part-time positions. The Association devoted itself to protecting the professional interests of its members, a role which grew in importance as increasing numbers of physicians reached the country.

The Association's efforts in the absorption of immigrant physicians is a memorable chapter in its history. During the years 1933-1939, more than two thousand doctors arrived, mainly from Germany. The Mandatory Administration refused to grant work permits to them and many were prevented from practising. Unemployment rose to alarming proportions, forcing many to leave their profession and to seek a livelihood in farming, the building trades, road construction and the like.

Although the physicians resident in the country laboured under economic hardship, the Association demanded that the gates of Palestine be opened to every doctor and that each be granted a licence to practise. It organized the medical work in such a way that doctors who were not permitted to practise were able, nevertheless, to work in their profession. Their prescriptions were signed by colleagues who had permits. An organization of non-licensed doctors was formed, embracing all those who had not received permits, and these were attached to other, licensed physicians. To share the limited work available among the many applicants, the Association forbade doctors to hold two positions or work in two institutions. Funds were set up to aid physicians who volunteered for hospital work for no other remuneration than their board.

The part played by the Palestinian doctors in the war effort of the Allied Powers in World War II deserves special mention. The Association encouraged and organized voluntary enlistment of doctors into the Allied armies; their contribution was a significant one and merited special praise.

In their attitude towards national health insurance, as well, the medical profession in Israel has adopted a distinctive stand. It was the Israel Medical Association that called for the introduction of national health insurance to include all sections of the population, for one national authority to replace the existing Sick Funds, of which many bear a party or political affiliation.

At the end of the year 1965 about 5,500 doctors were members of the Association, organized in 18 local branches.

To bring the Jewish doctor abroad into closer identification with the immense national task of rebuilding the country and with the aims and functions of the Association in particular, an 'Overseas Membership Programme' has been set up; it has more than five thousand members — Jewish doctors from every continent who follow with keen interest all that is going on in the field of medicine in Israel today. To keep them abreast of latest developments, the Association publishes a quarterly in three languages — English, French and Spanish. Congresses held once every three years, with overseas members participating, also serve to strengthen and multiply the ties between doctors in Israel and their colleagues abroad.

The Scientific Council of the Israel Medical Association

The Council was set up in 1946, as the scientific offshoot of the Association, at once an integral part of its Central Committee, yet operating in a distinct sphere.

'The Scientific Council strives to contribute to the advancement of science by stimulating medical research in Israel; to further the postgraduate training of members of the Medical Association; to organize scientific congresses on behalf of the Association and to coordinate scientific activities in Israel, including the publication of scientific literature.

The Constitution defines the aims of the Association in the scientific field as follows:

'to guard vigilantly the scientific and ethical standard of the medical profession in Israel; to probe matters of medical interest, paying particular attention to those medical problems intimately bound up with conditions in Israel and the lives of its people; to convene scientific meetings and congresses, and to take part in them; to arrange postgraduate courses; to form ties with scientific personalities and institutions abroad; to set up libraries and reading rooms of professional literature; to publish medical periodicals; to coin (Hebrew) medical terms.'

The Council is composed of an executive committee, a plenary and an advisory board; it draws its members from among the heads of local medical institutions. *Ex officio* members are the Director-General of the Ministry of Health, the Deans of Medical Schools, the Chairman of the Central Committee of the Association, the editors-in-chief of the medical publications of the Association, the Dean of the Faculty of Continuing Medical Education of Tel Aviv University, and the Head of the Institute of Postgraduate Medical Studies of the Medical School in Jerusalem.

In recent years, the Council has been statutorily charged to implement the Regulations governing the use of the title 'specialist'. Under the Regulations,

which the Council was instrumental in drafting, the Director-General of the Ministry of Health may confer the title on recommendation of the Council.

The Council determines which institutions are fully or partially accredited for studies leading to the title. An institution is recognized as fully accredited if it fulfils the conditions generally accepted in the scientific world.

The Council has prepared a syllabus of professional specialization for every branch of medicine, and examinations are to be introduced as a pre-requisite for the grant of the title. Once the syllabus is in force, mere tenure in a certain department will not suffice; the applicant will have to prove that he has fulfilled all the conditions laid down in the syllabus during his period of specialization.

The Council maintains firm ties with medical institutions and national medical associations abroad. It secures fellowships and openings for Israel doctors to pursue advanced studies, especially in subjects vital to Israel.

The Council has set up funds from income accruing to it and to the Association, to finance postgraduate studies and encourage medical research. As well as conferring monetary awards for such research, it grants loans to doctors wishing to specialize.

The Association publishes two journals of scientific medicine — 'Harefuah', in Hebrew and the 'Israel Journal of Medical Sciences' in English.

Despite its statutory function, the Council is a non-governmental body. Like the Association, it is based on the principle of voluntary association of members. Elected at the national convention of the Association, it embodies the principles of freedom of science, freedom of research, and freedom of study, independent of party or political trend and aspiring to a single goal — the high standard of medicine in Israel.

DENTISTRY

THE HEBREW UNIVERSITY — HADASSAH SCHOOL OF DENTAL MEDICINE

The need for a dental school had been felt for a long time; in addition to the need to prepare replacements for the dentists already in practice, to be trained in their own environment, it also became apparent that there was an absence of any recognized standard for the dentists currently practising, who had come from many different countries, and obtained the right to practise without any specific requirements other than a bona fide university diploma. An institution which could lay down standards, maintain them through its graduates, and at the same time offer postgraduate courses for those unable to spend any length of time abroad, thus became a necessity.

THE OATH OF THE HEBREW PHYSICIAN

NEW MEN OF MEDICINE IN ISRAEL!

Ye stand this day all of you before your masters in the ways of medicine and its statutes

That you should enter into covenant with medicine,
to fulfil its laws with uprightness, and with all your might and mind

That there may be established a generation of physicians worthy to do, and faithfully dedicated to succour the sick

And this is the covenant which I maketh with you this day saying:—

You are charged night and day to be custodians at the side of the sick man
at all times of his need.

You shall watch verily over the life of man even from his mother's womb
and let his welfare always be your chief concern.

You shall help the sick, base or honourable, stranger or alien or citizen, because he is sick.

And you shall seek to fathom the soul of the sick, to restore his spirit,
through understanding and compassion.

Do not hasten to bring forth judgment, and weigh your advice on a wise balance,
tried in the crucible of experience.

Be true to him who puts his trust in you. Reveal not his secret
and go not about as a tale-bearer.

And make wise your heart to the well-being of the many, to bring healing for
the ailments of the people.

Give honour and esteem to your teachers who have striven to lead you in
the paths of medicine.

Increase wisdom, and weaken not, for wisdom is your life and out of it are issues of life.

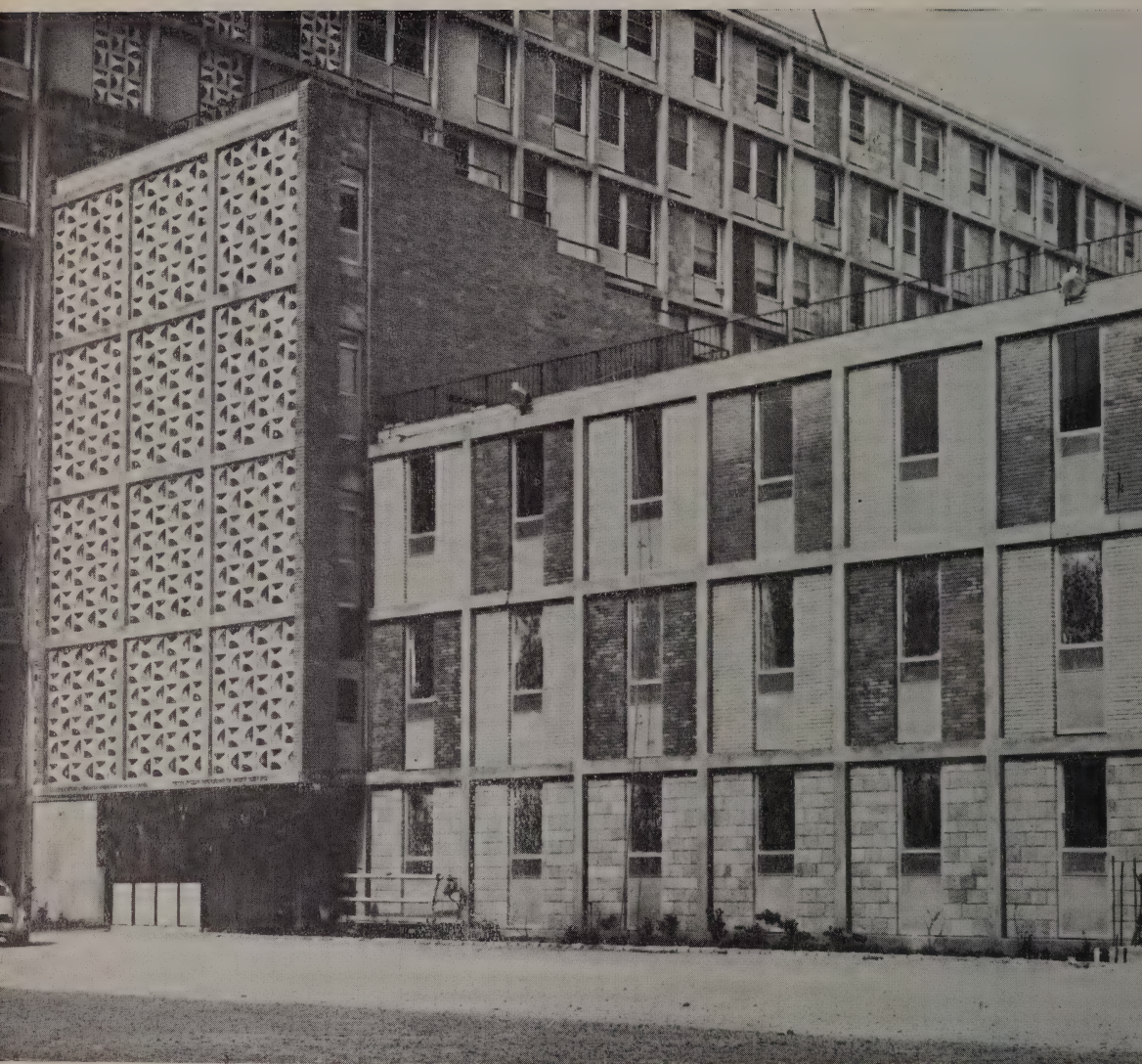
Be heedful for the honour of your brothers as in honouring them
you will yourselves be honoured.

The words of this covenant are most nigh unto you. They are in your
mouths and hearts that you may do them and you will all answer — AMEN!

AMEN, SO WILL WE DO

May your efforts to enhance the heritage of medicine in Israel grow and multiply.

Formulated by L. Halpern, M.D., on the occasion of the graduation ceremony of the first medical course of the Hebrew University-Hadassah Medical School, on La'g Be'omer 1952 (May 13, 1952) in Jerusalem, and translated from the original Hebrew by E. Davis, M.D.



Partial view of the Hebrew University-Hadassah Medical School, Jerusalem



Medical Students' Hostel near Hadassah Medical Centre, Jerusalem



African Medical Students, Jerusalem



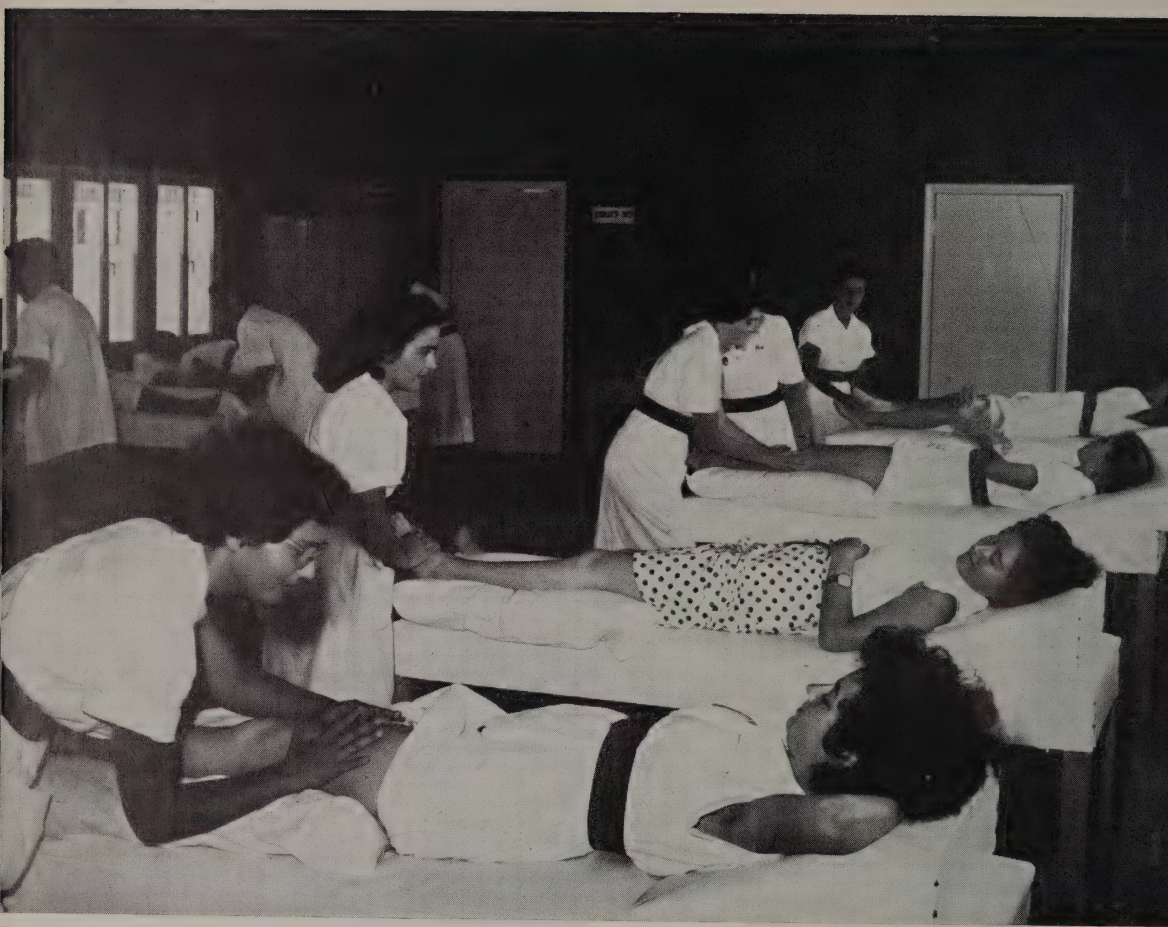
Beilinson Hospital Nursing School

Student Nurses' Dormitory, Hadassah Medical Centre, Jerusalem





Break between Classes — Student Nurses at Rambam Hospital, Haifa



Students Practising at School of Physiotherapy, Assaf Harofeh Government Hospital, Zerifin

With the establishment of the Hebrew University-Hadassah Medical School in 1949, the way was paved for the founding of the School of Dentistry. The School, opened in 1953, was made possible chiefly through the assistance of the Alpha Omega Fraternity, a large Jewish dental brotherhood with members in the United States and Canada, and of the World Federation for the Israel Dental School, with chapters in several countries, in which the British branch plays a leading role. The first graduates of the School received their degrees in 1959. Gradually, the School progressed and, thanks to the untiring efforts of Alpha Omega, it could move to its new building in the Medical Centre in October 1964.

There it was able to expand, and it now comprises the following departments: oral diagnosis, oral medicine and roentgenology; periodontics and endodontics; oral rehabilitation; oral surgery and anaesthesia; preventive dentistry and paedodontics; orthodontics. In addition, there is a Postgraduate Research Centre.

In the five floors of the new building are located a surgical clinic, three operating rooms and a recuperation room, an oral diagnosis clinic and X-ray facilities, two clinics, each with 30 chairs and prosthetic laboratories, laboratories for oral histopathology, oral microbiology and immunology, connective tissue research, oral physiology and fluorine research, a lecture hall, a conference room, demonstration rooms, a library, reading room, seminar room, students' laboratories, offices of the academic and of the administrative staff.

The School has a clinical and pre-clinical professional staff of more than 40 full-time members, who take part in all phases of teaching, and also carry out research projects.

The course covers a period of six years (including pre-medical, pre-clinical and clinical training). The first one and a half years are devoted to pre-dental studies (primarily in the basic sciences), of which most are in the Faculty of Sciences on the main campus of the Hebrew University. The next two and a half years are spent on pre-clinical studies, with special emphasis on dental subjects, and the last two years on clinical dental training.

On completion of their examinations and submission of their theses to a faculty committee, the students receive the degree of Doctor Medicinae Dentariae (D.M.D.).

The School admits 25 students each year, but it is hoped that the number may be increased to 40, in an endeavour to help to alleviate the serious dearth of practitioners.

PHARMACY

THE HEBREW UNIVERSITY SCHOOL OF PHARMACY

The School was opened in 1953. It offers courses leading to the degree of Bachelor of Pharmacy (B. Pharm.) and a Master's degree (M.Sc.) with specialization in subjects taught in the School.

The B. Pharm. course extends over three and a half years of study and a year of practical work in a pharmacy recognized by the School. The practical work is done during vacations — each of approximately two months — between the second and third years of study and between the third and fourth, and after the fourth year.

The first year is devoted to basic sciences: botany, zoology, physics, inorganic chemistry, qualitative and quantitative analytical chemistry, organic chemistry and physical chemistry. There are supplementary courses in mathematics and English. The next two and a half years are spent in pharmaceutical chemistry, industrial pharmaceutical technology, pharmacognosy, pharmacology, anatomy, physiology, biochemistry, microbiology and parasitology. A course in Latin and pharmaceutical law is obligatory.

Holders of the B. Pharm. who secure a specified minimum of grades may proceed to work for the M.Sc.: this lasts five trimesters in one of the following subjects: pharmaceutics, pharmaceutical chemistry, pharmacology, pharmacognosy.

The first graduates of the School were awarded their diplomas in 1958, and, by the end of 1965, some 90 pharmacists had completed the full syllabus and received their Master's degrees.

NURSING

The Nursing Unit of the Ministry of Health is responsible for the maintenance of properly functioning nursing services in the country; it determines nursing policy, sees to the maintenance of professional standards and to the development and the advancement of the profession.

This function is carried out in setting standards for the various types of nursing training, in formulating basic and post-basic training programmes, in the registration and granting of diplomas to nurses on completion of their training, in determining directives concerning the recognition of the professional status of nurses who received their training abroad, and in the assistance and guidance given in determining patterns of work in various spheres of nursing.

The Unit initiates and encourages recruiting campaigns to attract suitable candidates for training and employment in the various branches of the profession.

At the head of the Nursing Unit is the Matron-in-Chief, assisted by supervisors for training, for bedside nursing services, for field services and for mental health services.

The functions of the Unit may be divided into functions of advice, guidance and supervision on the one hand, and operational functions on the other.

Basic Training

The policy of nursing education is determined in cooperation with all the agencies concerned. The following courses are held under the supervision of the nursing Unit:

1. *Three-year Nursing Schools:* There are 14 nursing schools for registered nurses. Candidates are required to have completed 12 years of schooling.
2. *Courses for Practical Nurses:* There are 18 courses for practical nurses. The duration of training is 18 months. The minimum educational requirement for acceptance is 8 years' schooling.
3. *Courses for Nursery Nurses:* There are four institutions holding courses for nursery nurses at baby homes. Educational qualifications for admission are eight years' schooling. The students are trained to take care mainly of healthy children, but they are also offered experience in the hospital paediatric wards. Nursery nurses are included in the register of practical nurses.

All programmes for additional training of registered and practical nurses, in both Government and non-governmental institutions, are also under the supervision of the Unit.

Special Training for Nurses

1. *Midwifery:* The objective of the 30 weeks' course is to prepare registered nurses for independent positions as midwives within institutions.
2. *Operating Room Techniques:* The objective of the 30 weeks' course is to train registered nurses in the professional performance of operating room techniques and in teaching and supervising other personnel.

3. *Public Health*: The objective of the 9 months' course is to prepare registered nurses for service as members of the public health team in the community, especially to train them for service in mother-and-child health centres, school health services and health centres.
4. *Mental Health*: The objective of the 12 months' course is to prepare registered nurses for work in psychiatric institutions and in the field of mental health in general.
5. *Nursing Instructors (Sister Tutors)*: The objective of the 6 months' course is to raise the level of teaching in nursing schools and training courses by developing the understanding of the principles of teaching and education and the ability to make use of these principles in planning, operating and assessing the training of students; developing the understanding and the ability to utilize the principles of mental hygiene and the dynamics of human behaviour; acquiring knowledge in the field of administration.
6. *Administration and Supervision*: The objective of the 6 months' course is the improvement of methods of administration of the nursing services by developing expertise and understanding of the principles of administration and their application in the various fields of work.

Along similar lines, courses are held for the additional training of practical nurses:

1. *Midwifery*: Duration of course is 16 months. The objectives of the course are to prepare practical nurses to function as midwives in institutions under supervision of qualified midwives and/or obstetricians.
2. *Operating Room Techniques*: The objectives of the course are to prepare practical nurses to function as operating room nurses under the supervision of a registered nurse and a surgeon. Duration of the course is 12 months.
3. *Public Health*: Practical nurses accepted for employment in public health receive in-service training lasting 3 months. There is no special course.
4. *Course in Mental Health for Nurses in Kibbutzim*: Duration of the course is 9 weeks. The course is held at the request of the Inter-Kibbutz Health Committee and in view of the special needs of kibbutz nurses.
5. *Course for Operating Room Technicians*: The objectives of the course are to train technical staff in carrying out the basic technical work in operating theatres under the supervision of a surgeon and/or a registered nurse. Duration of the course is 2 years.

Professional Status and Supplementary Training

A committee to determine the professional status of nurses who received their training abroad was appointed by the Director-General. The committee decides on the criteria according to which professional status is determined. The directives are determined according to standard requirements of professional training in Israel, comparing the curriculum in nursing schools abroad with that obtaining in Israeli schools.

The fundamental principle laid down is based upon the following requirements:

- a) that the volume of lectures and the practical experience in the main compulsory subjects be equivalent to those obtaining in Israel;
- b) that the standard of general education be similar to that required in Israel.

Medical Assistants (Feldshers) from Eastern Europe and from Iraq were trained as assistants to the doctors in their countries of origin. Since their professional training is not the same as that which is the standard in training schools for registered nurses in Israel, and in order to ease their integration in this country, they were accorded temporary status as practical nurses, and they are given the opportunity of undergoing a supplementary course in nursing, so that they may attain the status of registered nurses. The duration of the course is 6 months.

Practical male and female nurses of suitable qualification who demonstrated their ability at work may participate as candidates for supplementary courses to obtain their diplomas as registered nurses. The course takes the form of a period of intensive study alternating with a period of practical experience lasting for two years. Special grants are given to students.

Nursing aides of adequate qualification, who have had 8 years of schooling, and three years of nursing experience, and who have demonstrated their ability at work, may be admitted to supplementary studies for the purpose of obtaining the status of practical nurse. Duration of studies is one year, and there are special grants.

With a view to starting a Faculty of Nursing, contact has been made with the University authorities, various data have been collected and various syllabuses prepared.

PHYSIOTHERAPY

THE SCHOOL OF PHYSIOTHERAPY AT THE ASSAF HAROFE GOVERNMENT HOSPITAL

This school was founded in 1953.

Qualification for admittance to the School is a completed secondary education or 12 year's schooling and knowledge of English.

Lectures are given mostly by physicians and partly by qualified physiotherapists. Clinical experience is gained through in-service training. For this purpose almost all departments of other hospitals, having any connection with rehabilitation tasks, are used (Tel Hashomer hospital, Beilinson hospital, Hebrew University-Hadassah hospital, Malben hospital at Mahane Israel).

By 1967, over 200 students, the majority female, had graduated.

THE SCHOOL OF PHYSIOTHERAPY OF KUPAT HOLIM AND THE WINGATE INSTITUTE

The Kupat Holim School of Physiotherapy is maintained in conjunction with the Wingate Institute for Physical Training.

The curriculum, approved by the Ministry of Health, conforms to the accepted requirements of training institutes of this type elsewhere as well as to the principles laid down by the International Association of Physiotherapists. It extends over a period of 3 years, with 33 months of regular attendance.

The curriculum is divided into theoretical studies and practical work, with a clinical training period. Most of the theoretical and practical training is done at the Kupat Holim physiotherapy institutes and also at Kupat Holim hospitals.

The teaching staff consists of medical specialists and qualified teachers of physiotherapy, as well as of qualified instructors who teach and supervise the clinical part of the curriculum.

The students are selected by an admission board, on a competitive basis.

A diploma is awarded to students upon successful completion of the programme, including the licensing examination of the Ministry.

At the end of 1965, the total enrolment was 74. The first class graduated in October 1966.

Graduates are under contractual obligation to work for one year in Kupat Holim physiotherapy institutes where the shortage of staff is most pronounced.

OCCUPATIONAL THERAPY

The first course in occupational therapy was started prior to 1948, but when Israel came into being, the Ministry of Health, jointly with the Hadassah Medical Organization, Kupat Holim and Malben, sponsored the establishment of a regular School of Occupational Therapy.

The requirements for admission to the School are a secondary education certificate and personal maturity. Candidates undergo a personal interview, supplemented by various aptitude tests.

Students attend classes for three years: in the fourth year they practise at a hospital. The curriculum consists of anatomy, pathology, physiology, kinesiology, psychology, psycho-pathology, general medicine, occupational therapy as applied to a specific pathology, and rehabilitation. There is also training in such crafts as carpentry, metal-work, sewing, needlework and ceramics. At the end of the third year, each student has to write a thesis on occupational therapy and attend a colloquium; if he passes this examination, he is granted the diploma of a qualified occupational therapist and is registered as such at the Ministry.

Today, all mental hospitals and most of the general hospitals have occupational therapy departments, and there are about 210 occupational therapists working throughout the country. In recent years a tendency has developed to have occupational therapists working with the medical teams in such settings as health centres, clinics and home services.

MEDICAL SOCIAL WORKERS

Medical social workers have become an integral part of the therapeutic team in specialized medical settings such as services for the mentally ill, hospitals and clinics for tuberculous patients, rehabilitation wards and centres for the physically disabled. Yet, social services in general hospitals are scarce.

There is, however, a steadily, though slowly, rising demand for medical social workers, based on the recognition of the impact of psychological, social and environmental factors on illness and health and, therefore, of the need for assessment, interpretation and service, to permit successful medical treatment; since rehabilitation requires the earliest possible comprehensive assessment of a patient's rehabilitation potential, the mobilization of his personal capacity and of available community resources, the participation of social workers in every medical team is indispensable.

Unfortunately, the great shortage of qualified social workers in Israel seriously delays the expansion of medical social work, and there are still many

vacancies in those medical agencies which have decided to add such personnel to their staff.

Until 1960, social workers were trained in schools in Jerusalem and Tel Aviv, each with a two-year curriculum based on classroom tuition and fieldwork instruction. Since 1961, about 70 students have been graduating each year with B.A. degrees from the Paul Baerwald School of Social Work of the Hebrew University of Jerusalem (with a branch in Tel Aviv) after three years of study.

In the second and third years, students are given fieldwork experience; many are placed in a medical setting for this purpose.

THE COLLEGE OF NUTRITION AND HOME ECONOMICS

The College, housed in a building of the Ministry of Education and Culture in Jerusalem, was founded in November 1952 with the active participation of the United Nations Food and Agriculture Organization (F.A.O.). The assistance it gave took the form of expert advice, equipment and two fellowships for the staff of the College.

The curriculum is designed for the training of teachers in home economics; training of dietitians; refresher courses for professional workers in both professions; guidance in home economics for adults; African trainees.

Three specializations are offered:

- a. *Teachers in nutrition and home economics* for elementary schools. A two-year course in which the pedagogical and Hebrew subjects are on the same level as in general teachers' training colleges, leading to the same final examinations, while about 15 hours a week are devoted to nutrition and home economics subjects and about 10 hours to basic sciences, Hebrew and English.
- b. *Teachers in nutrition and home economics* for secondary, vocational and agricultural schools. The basic training is the same as under (a). There is, however, a third year of studies on a higher academic level for selected students of the second year and for graduates who have distinguished themselves in their teaching career.
- c. *Dieticians* are also trained according to the basic programme under (a), leading to a third year of specialized training and practice as interns in the Hebrew University-Hadassah hospital. This specialized training is conducted in cooperation with the Ministry of Health.

Some fifty students graduate from the College each year.

Refresher Courses are held in the College every second year, during the summer holidays, for home economics teachers at elementary schools, with especial attention to additional training for the teachers who guide students in their practice teaching.

On the pattern of the "extension work" which is featured at many colleges, the College has undertaken instruction in nutrition and home economics for adults.

One of the members of its staff devotes part of her time to the direction and supervision of this activity, in which eight full-time teachers are engaged. The College operates in the urban and semi-urban parts of Israel (while a similar programme for the rural sector is run by the Ministry of Agriculture).

Instruction in home economics is by way of courses, demonstrations, exhibits and home visits. There are six well-equipped centres in the main cities and in Be'er Sheva and Kiryat Shemona, from which the work is organized and carried out for all parts, with particular heed to places where new immigrants live. About 120 localities and 47,000 women are reached annually through about 2,000 courses, food demonstrations and exhibits. Besides nutrition education organized directly by the eight teachers, guidance and supervision are given to local instructors, employed by women's organizations, who arrange home economics demonstrations about once a week. Cooperation is close and effective with the Home Economics Extension Department of the Ministry of Agriculture, by means of exchange of experts and joint undertakings.

Training is also provided for trainees from English-speaking countries in Africa. The courses are sponsored by the Israeli Ministry for Foreign Affairs, FAO and UNICEF. They include a ten-weeks' course in basic sciences at the Hebrew University.

The main subjects of the course are: food preservation; applied nutrition; nutrition education in schools and for adults; mass-feeding, with special emphasis on school-feeding; training of professional nutrition workers; food consumption surveys.

The duration of the whole course is five months.

The College publishes a monthly nutrition journal as part of its in-service training programme. This journal features original articles as well as extracts from articles on food and nutrition published abroad. It is intended for all professional workers interested in the field of nutrition, such as teachers, physicians, nurses, and food technologists.

Food composition tables are published by the College, using, as far as possible, figures derived from analysis of local foods.

Popular booklets are published from time to time for distribution during food demonstrations and exhibits.

Several studies were made of food consumption among the different sectors of the population. In 1959, the results were published of a large-scale survey conducted in 1956/57 among some 7,000 wage-earning families, forming a cross-section of the urban and semi-urban population. In 1961, a similar survey was published, regarding the food consumption and levels of nutrition of the rural population; it was undertaken with active student participation.

Another survey, also carried out jointly with the students, was published in 1964, giving the results of a study of the factors causing changes in food habits and their relative strength. Two other surveys dealt with the food intake (with special attention to riboflavin) of pregnant women, and with the effects of various types of reducing diets.

LICENSING OF PRACTITIONERS

All physicians, dental surgeons, dentists, pharmacists and midwives are licensed by the Ministry of Health; trained nurses are registered.

Medical Practitioners

At the end of 1966, there were 6,339 licensed physicians in Israel, the overwhelming majority graduates from universities abroad. The remainder were graduates of the Hebrew University-Hadassah Medical School, founded in 1949. Graduates from abroad are eligible for licence if they received their degree from a medical school approved by the Director-General of the Ministry. These are the medical schools listed by WHO. The physician-to-population ratio was one to 437 in 1964, which would seem to suggest an over-supply of physicians. In fact, Israel tops the list of countries as far as physician-population ratio is concerned.

TABLE 1
INHABITANTS PER PHYSICIAN IN SELECTED COUNTRIES

Country	Year	Inhabitants per physician	Country	Year	Inhabitants per physician
Israel	1963	430	Poland	1963	870
U.S.S.R.	1963	510	France	1963	870
Austria	1963	560	Norway	1962	890
Czechoslovakia	1963	570	Sweden	1963	960
Federal Republic of Germany	1963	650	Lebanon	1962	1,000
Argentina	1962	670	Yugoslavia	1963	1,300
U.S.A.	1963	690	Chile	1960	1,800
Australia	1963	730	Egypt	1962	2,500
Switzerland	1963	760	Jordan	1963	4,800
Denmark	1963	760	Iraq	1963	4,800
United Kingdom of Britain	1963	840	Syria	1963	5,400

Source: World Health Statistical Annual, World Health Organization, Geneva, 1966.

Many of the physicians who immigrated from Europe in the 1930's, after Hitler's rise to power in Germany, are now in the higher age-groups (Table 2). The predominance of elderly doctors has diminished slightly in recent years with the growing numbers of Israelis trained in the Hebrew University-Hadassah Medical School in Jerusalem or at universities abroad.

TABLE 2
DOCTORS BY AGE AND SEX, 1963; NUMBERS AND PERCENTAGES

Age-group	Males	Females	Both Sexes
	Numbers		
25-29	178	48	226
30-34	323	144	467
35-39	460	232	692
40-44	466	163	629
45-49	345	106	451
50-54	584	123	707
55-59	496	129	625
60-64	464	115	579
65-69	402	124	526
70+	378	96	474
Not known	139	58	197
Total	4,235	1,338	5,573
Percentages			
25-29	4.3	3.7	4.2
30-34	7.7	11.2	8.7
35-39	11.1	18.1	12.8
40-44	11.2	12.7	11.7
45-49	8.4	8.3	8.4
50-54	14.2	9.7	13.1
55-59	12.0	10.0	11.6
60-64	12.3	9.0	10.7
65-69	9.7	9.8	9.8
70+	9.1	7.5	9.0
Total	100.0	100.0	100.0

Source: Herbert Smith, Manpower Report, Doctors in Israel, Ministry of Labour, Jerusalem 1964.

Maldistribution of physicians is another problem encountered in Israel as in many other countries; many physicians prefer to work in the towns (Table 3). The problem of supplying adequate medical care in remote places, especially new immigrant villages, has not yet been satisfactorily solved; a committee studied the problem and published a comprehensive report on the situation*; legislative and organizational measures are being discussed by the Ministry, the Knesset, Kupat Holim and the Medical Association.

TABLE 3
DISTRIBUTION OF DOCTORS BY RESIDENCE IN CITIES AND RURAL AREAS
IN COMPARISON WITH DISTRIBUTION OF POPULATION, 1963;
PERCENTAGES

Place	Percentage of	
	Population	Doctors
Jerusalem	7.5	12.9
Tel Aviv-Yafo and suburbs	31.5	44.1
Haira	8.8	13.0
Other cities with 15,000 population and more	20.6	19.5
Rural areas and cities with less than 15,000 population	31.6	10.5

Source: Herbert Smith, Manpower Report, Doctors in Israel, Ministry of Labour, Jerusalem 1964.

Dentists

The first Ordinance to regulate the practice of dentistry was enacted in 1926. To obtain a licence to practise, the applicant had to prove that he had studied dentistry "for a period of at least three academic years in a dental or medical school recognized by the Director (of the Department of Health) and (had) obtained a diploma in dentistry". Since there were many lacking these requirements, a provision in the Ordinance enabled the Director to grant "upon application made within twelve months from the date at which this Ordinance comes into force, if he thinks fit, a permit to practise dentistry to any person who was engaged in dental practice in Palestine on his own behalf for a period of five years at least during the seven years preceding the date of this Ordinance".

* Report Submitted by the Commission for Clarifying the Problem of Shortage of Doctors, 1963 - 64 (Dr.H.S.Halevi), Ministry of Health, Jerusalem, 1964.

A permit of that kind was valid for one year only and had to be renewed every twelve months. It did not entitle its holder to use the title of dentist or dental surgeon.

In 1947, towards the end of the Mandatory period, 842 dentists and dental practitioners were registered. Of these, 718 were Jews and 64 were non-Jews: almost all the non-Jews remained outside the boundaries of Israel after 1948.

TABLE 4
AGE DISTRIBUTION OF DENTISTS AT THE END OF 1964, PERCENTAGES

Age group	Percentage
- 30	9.5
31 - 40	18.0
41 - 50	18.6
51 - 60	28.2
61 - 70	21.9
70 +	4.3

At the end of 1966, Israel had 1,211 graduate dentists and 579 licensed dental practitioners, a ratio of one dentist to 1,480 population.

As for the non-graduate licensed dental practitioners, all had had at least fifteen years' experience in the profession and were licensed abroad or passed practical and theoretical examinations held by the Ministry of Health.

Pharmacists

There were 1,527 licensed pharmacists at the end of 1966.

PART 6

Background Reviews

HEALTH STATISTICS

The first official medical statistics were published in the reports of the Mandatory Administration for Palestine for the year 1921. They covered, mainly, the epidemiological activities of the Mandatory Health Services, but also included Jewish national institutions and other voluntary agencies. The first attempt to compile statistics on causes of death was made in 1938. Five years later (1943), the first diagnostic statistics, based on reports from 42 hospitals, were published.

In the early forties, the Central Office of Medical Statistics was established. It was a joint institution of the Va'ad Le'umi (Jewish National Council), the Hadassah Medical Organization and the Histadrut's Kupat Holim, (the Sick Fund of the General Federation of Labour) and operated up to 1948. After the establishment of the State in that year, the Health Section of the newly formed Central Bureau of Statistics, a part of the Prime Minister's Office, took over the duty of dealing with medical and health statistics on a national scale. It concentrated, from the beginning, on two aspects: the statistics of causes of death, and diagnostic statistics of hospitalized patients. These two fields were thought the most important ones to start with for providing urgently needed information on the health condition of a rapidly growing population.

Statistics of Causes of Death

The Central Bureau of Statistics receives copies of all notifications of death. The information contained in them is the basis for the statistics of causes of death. Notifications relating to the Jewish population are practically all medically certified. Medical certification of notifications relating to the non-Jewish population (excluding Bedouin) in 1966 came to 94% in towns and 80½% in rural settlements. At present, only the main cause of death is used for statistics, but first attempts are being made to include in the analysis additional causes mentioned in the notification, and to facilitate a multi-cause tabulation. In this way, a total count of the conditions reported in the notifications would be provided, and associations frequently reported together could be investigated. So long as the principle of dealing only with one, that is, the underlying, cause of death is followed, many conditions are under-represented in the tabulations.

In spite of the generally accepted fact that the statistics of causes of death are losing their significance as a measure of health conditions, they are still important for illustrating how and why people die. As infectious diseases become less frequent, diseases of a degenerative character, which are assumed to be the result of or the reaction to long-term and continued influences of environmental factors, take on a greater importance as causes of death. The crude death rate for malignant neoplasms rose by 62% for Jewish males and by 34% for Jewish females between 1950 and 1966 (see Table 1) and for coronary disease by nearly 2½ times for males and over 3 times for females; the increase in the death rate for the age group of 65 years and over was not less remarkable: nearly twice for males and nearly 2½ times for females. The two disease groups mentioned show a marked characteristic in another aspect, too, namely with regard to their ethnic distribution. In Table 2, death rates are given for the foreign-born Jewish population of age 15 years and over, divided into two ethnic groups according to continent of birth (Asia-Africa and Europe-America). The death rate for the 'Europe-America' group in respect to malignant neoplasms is more than twice as much as for the 'Asia-Africa' group, and in respect to coronary disease it is between two and a half and four times as much.

Infant mortality is still considered one of the most sensitive health indicators. The rate for the Jewish population for 1966 (21.6) was about two thirds the rate for 1955 (see Table 4). The death rate for infants of 1-11 months of age was less than one half in 1966 (7.0), compared with 1955. The rates for 1950 were very high as that year was one of mass immigration. In 1947, for example, the infant mortality rate was only 29.1.

Diagnostic Statistics of Hospitalized Patients

Soon after the establishment of the State, the Health Section of the Central Bureau of Statistics continued in its efforts to persuade all hospitals to register patients uniformly. It was thought that systematic information on the hospitalized population, as regards its demographic and social structure, might be of great value in the study of morbidity and of the health conditions in the different elements of Israel's population, particularly in connection with population groups differing so widely in cultural background, health levels, customs and habits.

An agreement was reached with regard to the minimum of information which the hospitals should provide and the order in which this should appear on the relevant documents to permit an efficient method of analysis. The statistics published since 1950 refer to general hospitals only.

The information given for every discharged patient refers to the dates of admission and discharge, sex, age, family status, country of birth, year of immigration, place of residence and disease.

The statistics at present refer to discharges and not individuals; that is, if a person was, for example, hospitalized three times in a year, he would be counted three times in the statistics. Instructions have recently been issued to hospitals to use the number of the patient's identity card on all medical records; this will make it possible to provide statistical information referring to patients and not only to discharges.

The rising number of hospitalizations due to the rapidly growing population made it necessary, for financial reasons, to process the relevant material on a sample basis; at present 12½ percent of the discharge records are used, except for diseases where less than 500 discharges are expected. These diseases are processed one hundred percent.

The rates of hospitalization (namely, the number of persons hospitalized per 1,000 population) was over 35% more in 1965 (96) than in 1952 (71) (see Table 6). It increased alike for males and females and for each of the six age groups mentioned in Table 6. The largest increases are in the age groups 1-4 and 65 and over, from 47 to 90 and from 116 to 197 cases per 1,000 population respectively.

The rates refer to the Jewish population.

Not only causes of death but also hospitalizations show differences between the two main Jewish population groups, Asia-Africa-born and Europe-America-born (see Table 7). For both groups the rates of hospitalization increased from 1952 to 1965, but the rates for the Asia-Africa-born patients are always lower.

The importance of the different causes of hospitalization has changed: whereas, in 1952, gastroenteritis and pneumonia occupied the first place in a list of the ten most frequent causes (see Table 8), with 951 cases out of every 10,000 defined hospitalized cases, external causes, with 931 cases, came at the top in 1965. Coronary disease and malignant neoplasms changed their position from tenth and ninth place in 1952 to fourth and fifth place, respectively, in 1965. Tuberculosis, on the other hand, which occupied the seventh place in 1952 with 279 cases out of 10,000 defined cases, was no longer included in the ten most frequent causes of hospitalization in 1965, with only 58 cases out of 10,000 defined cases.

Sick Funds

Sick Funds play a very important role by supplying the necessary services to the majority of the population. The membership of the largest of these, the Histadrut's Kupat Holim, doubled during the last thirteen years, covering nearly three-quarters of the population in 1965 compared with over one half

in 1952. The membership figures of the different funds may be exaggerated by reason of various sources of error: for example, a person whose membership has lapsed may still continue to be counted or a person who has changed his place of work or residence may appear twice in the statistics.

PUBLICATIONS

1. *Diagnostic Statistics of Hospitalized Patients*

Central Bureau of Statistics

Special Publications Series Nos. 49 (1950-1953), 86 (1954), 100 (1955-1956), 110 (1957), 128 (1958), 129 (1959), 169 (1961), 181 (1962), 204 (1963) and 226 (1964).

2. *Causes of Death*

Central Bureau of Statistics

Special Publications Series Nos. 9 (1950), 17 (1951-1952), 47 (1953-1954), 63 (1955), 79 (1956), 84 (1957), 95 (1958), 112 (1959), 125 (1960), 138 (1961), 159 (1962), 177 (1963), 191 (1964), 220 (1965) and 233 (1966).

TABLE 1

MAIN CAUSES OF DEATH, BY SEX AND TWO AGE GROUPS,
Rates per 1,000 Population (Jews)
1950 - 1966

Causes of Death		1950		1955		1960		1966	
		All Ages	65+	All Ages	65+	All Ages	65+	All Ages	65+
Absolute Numbers									
All causes	M	3,914	1,195	4,833	1,962	5,614	2,423	8,000	4,149
	F	3,230	1,167	4,136	1,947	4,790	2,402	6,709	3,987
Rates per 1,000 Population									
	M	6.901	63.541	6.120	59.473	5.883	52.854	6.980	62.052
	F	6.035	53.179	5.402	51.400	5.160	48.680	5.971	56.549
Rates per 1,000 Population									
1. Malignant neoplasms	M	0.707	8.859	0.837	8.987	0.987	8.507	1.143	9.369
	F	0.837	7.357	0.961	7.643	1.066	8.046	1.123	7.671
2. Coronary disease	M	0.797	9.966	1.300	1.541	1.497	15.575	1.925	17.782
	F	0.351	5.359	0.691	1.009	0.835	11.390	1.128	12.767
3. Vascular lesions of central nervous system	M	0.555	10.177	0.569	9.409	0.501	7.286	0.763	9.036
	F	0.605	10.672	0.656	9.718	0.700	10.093	0.865	10.519
4. Dis. of early infancy and congenital malformations	M	1.019	0.053	0.638	0.030	0.538	0.022	0.441	0.042
	F	0.730	0.091	0.458	—	0.435	0.020	0.341	0.013
5. Pneumonia and gastro-enteritis	M	0.545	2.742	0.339	2.051	0.227	1.549	0.153	1.039
	F	0.629	2.089	0.391	1.574	0.227	1.297	0.180	1.437
6. External causes	M	0.735	2.162	0.538	1.448	0.455	1.331	0.473	1.719
	F	0.353	2.089	0.319	2.075	0.277	1.520	0.276	1.686

TABLE 2

MAIN CAUSES OF DEATH AMONG FOREIGN-BORN JEWISH POPULATION, BY CONTINENT OF BIRTH, AGE 15 + (1950 - 1966)

Cause of Death	1950				1955				1960				1966			
	All Continents	Asia- Africa	Europe- America		All Continents	Asia- Africa	Europe- Africa		All Continents	Asia- Africa	Europe- America		All Continents	Asia- Africa	Europe- America	
All Causes	4,896	917	3,302		7,147	1,896	4,734		8,718	2,429	5,584		13,235	4,182	8,315	
Absolute Numbers																
Rates per 1,000 Population																
Rates per 1,000 Population																
Malignant neoplasms	1.068	0.573	1.222		1.318	0.834	1.721		1.500	0.831	2.204		1.643	1.016	2.706	
Coronary disease	0.824	0.251	1.035		1.505	0.787	2.051		0.796	0.954	2.651		2.253	1.427	3.738	
Vascular lesions of central nervous system	0.823	0.621	0.867		0.920	0.894	1.050		0.918	0.883	0.086		1.177	1.264	1.530	
Pneumonia and gastroenteritis	0.179	0.286	0.134		0.165	0.244	0.145		0.138	0.181	0.135		0.148	0.166	0.168	
External Causes	0.654	0.543	0.514		0.540	0.437	0.528		0.454	0.433	0.456		0.491	0.519	0.545	
Congenital malformations	0.019	0.006	0.013		0.018	0.025	0.015		0.017	0.012	0.020		0.027	0.017	0.022	

TABLE 3
MATERNAL DEATHS (JEWS)

	1950	1955	1960	1966
Absolute numbers	35	31	26	27
Rates per 1,000 live births	0.96	0.73	0.57	0.52

TABLE 4
INFANT MORTALITY RATES, BY AGE (JEWS)

Age	1947*	1950**	1955**	1960**	1966*
Total	29.1	46.2	32.4	27.0	21.6
Up to 1 month	16.3	22.7	16.7	16.3	14.6
1 - 11 months	12.8	23.5	15.7	10.7	7.0

* Calculated per 1,000 live births.

** Calculated for 1,000 infants of the same age, who were alive during the same year, including infant immigrants. As 1950 was one of the years of mass immigration, the rates are very high.

TABLE 5
MAIN CAUSES OF INFANT DEATHS — PERCENTAGES
1948 - 1966

Cause of Death	1948	1958	1959	1960	1961	1962	1963	1964	1966
All causes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Infectious and parasitic diseases	6.1	3.8	3.0	2.4	2.1	3.7	1.9	2.0	3.2
Pneumonia, bronchitis and influenza	12.4	13.0	11.7	9.5	12.6	10.3	8.5	9.9	6.1
Gastroenteritis	23.2	9.2	7.6	8.1	8.0	11.4	6.2	4.5	5.1
Malformations and other conditions related to prenatal disturbances, birth and early infancy	50.8	62.0	67.8	69.6	67.5	63.9	73.5	72.4	74.0
All other diseases	7.5	12.0	9.9	10.4	9.8	10.7	9.9	11.2	11.6

TABLE 6
HOSPITALIZATION, RATES PER 1,000 POPULATION

	1952			1955			1960			1965		
	Both Sexes	M	F	Both Sexes	M	F	Both Sexes	M	F	Both Sexes	M	F
Discharged Patients												
Absolute Numbers												
All Ages	101,101	46,052	55,049	116,357	52,057	64,300	173,271	79,517	93,754	217,398	104,082	113,316
Rates per 1,000 Population												
All Ages	70.7	83.3	78.4	74.8	65.9	84.0	92.0	83.3	101.0	95.8	90.8	100.8
0	234.1	246.4	220.1	242.2	262.4	220.4	296.0	337.5	251.0	278.2	314.6	239.7
1 - 4	47.4	53.5	40.6	62.4	71.8	52.5	82.3	93.3	69.8	89.7	100.9	77.8
5 - 14	41.0	46.6	34.9	38.3	44.2	31.9	50.7	56.7	44.1	48.1	53.8	42.0
15 - 44	67.8	47.9	88.3	70.0	45.2	94.7	87.0	55.8	118.4	87.8	64.8	110.7
45 - 64	83.4	80.0	87.0	84.2	82.9	85.7	110.6	108.5	112.6	117.4	120.0	114.8
65 +	116.1	128.8	105.0	113.0	128.4	92.6	176.2	190.7	162.5	197.2	217.8	177.7

TABLE 7

HOSPITALIZED PATIENTS, AGED 15 AND OVER, BY CONTINENT OF BIRTH, (JEWS)
RATES PER 1,000 POPULATION

	Year	Total	Asia-Africa	Europe-America
	1952	74.8	63.6	81.2
	1955	76.9	68.1	81.7
	1960	101.2	95.3	113.2
	1965	106.3	99.9	120.2

TABLE 8

TEN LEADING CAUSES OF HOSPITALIZATION;
RANK ORDER — NUMBER OF CASES PER 10,000 DEFINED CASES (JEWS)

	1952		1955		1960		1965	
	Rank Order	Number of cases per 10,000 defined cases	Rank Order	Number of cases per 10,000 defined cases	Rank Order	Number of cases per 10,000 defined cases	Rank Order	Number of cases per 10,000 defined cases
External Causes	3	816	3	752	1	919	1	931
Abortions	2	879	1	978	2	819	2	751
Gastroenteritis and pneumonia	1	951	2	885	3	741	3	676
Coronary Disease	10	255	7	306	4	398	4	531
Malignant Neoplasms	9	269	8	284	7	340	5	407
Intestinal Hernias	4	537	4	460	5	397	6	370
Benign Neoplasms	8	272	6	327	6	373	7	345
Hypertrophy of Tonsils	5	323	5	372	8	286	8	292
Acute Upper Respiratory Infection and Influenza	-	178	-	151	10	193	9	231
Diseases of Skin	-	166	-	203	9	260	10	208
Appendicitis	6	298	10	227	-	177		162
Tuberculosis, all forms	7	279	9	247	-	107		58

TABLE 8 A

LEADING CAUSES OF HOSPITALIZATION
NUMBER OF CAUSES PER 10,000 DEFINED CASES (JEWS)

	1952	1955	1960	1965
External Causes	816	752	919	931
Abortions	879	978	819	751
Gastroenteritis and pneumonia	951	885	741	676
Coronary disease	255	306	398	531
Malignant neoplasms	269	284	340	407
Intestinal hernias	537	460	397	370
Benign neoplasms	272	327	373	345
Hypertrophy of tonsils	323	372	286	292
Acute upper respiratory infection and influenza	178	151	193	231
Diseases of skin	166	203	260	208
Appendicitis	298	227	177	162
Tuberculosis, all forms	279	247	107	58

TABLE 9

SICK FUNDS — INSURED POPULATION (INCLUDING DEPENDANTS) ABSOLUTE NUMBERS
(IN THOUSANDS) AND PERCENTAGES OF TOTAL POPULATION

Sick Fund	31.12.1952		31.12.1955		31.12.1960		31.12.1966	
	Insured Population	% of total Population	Insured Population	% of total Population	Insured Population	% of total Population	Insured Population	% of total Population
Kupat Holim	882	54.1	1,050	58.7	1,412	75.0	1,905	71.7
National Workers'	100	6.1	133	7.4	161	8.6	216	1.8
Peoples'	32	2.0	12	0.7	30	1.6	35	1.3
Maccabi	—	—	—	—	67	3.6	148	5.6
General Zionists*	—	—	—	—	40	2.1	71	2.7
Assaf	—	—	—	—	—	—	28	1.0

* The dates refer to the end of the financial years 31.3.1960 and 31.3.1966 respectively.

TABLE 10

SICK FUNDS: NUMBER OF VISITS PER INSURED PERSON

Sick Fund	31.12.1952			31.12.1955			31.12.1960			31.12.1966		
	All Visits	In Clinics or at Physicians' Surgery	At Home	All Visits	In Clinics or at Physicians' Surgery	At Home	All Visits	In Clinics or at Physicians' Surgery	At Home	All Visits	In Clinics or at Physicians' Surgery	At Home
Kupat Holim	7.5	7.0	0.5	8.8	8.1	0.6	8.9	8.5	0.5	9.1	8.7	0.4
National Workers'	15.7	12.8	2.8	14.5	11.8	2.7	13.2	10.8	2.4	12.5	10.2	2.3
People's	10.1	8.4	1.7	10.1	8.9	1.2	10.3	9.4	0.9	11.7	11.0	0.7
Maccabi	—	—	—	—	—	—	10.8	9.9	0.9	9.0	8.3	0.7
General Zionists*	—	—	—	—	—	—	12.2	11.0	1.2	8.7	7.4	1.3
Assaf	—	—	—	—	—	—	—	—	—	9.3	8.5	0.8

* See footnote to Table 9.

DEMOGRAPHIC STATISTICS

Demographic statistics provide information on the size, development, composition and geographic distribution of the population, for the use of scientific research, on the one hand, and for practical application by administrators and planners, on the other.

All systematic research in the social or economic spheres, e.g., fertility, mortality, incidence of disease, housing conditions, manpower and production, requires basic data on the characteristics of the population investigated.

One of the typical features of contemporary society, moreover, is the extensive planning of the economy, and of various other social functions. Even in non-socialist regimes, the Government regulates fundamental trends of economic growth by ever-increasing intervention in economic processes through direct and indirect progressive taxation and the provision of such basic services as health and sanitation, social insurance, education and others. All economic and social planning has to rest on basic data concerning population, structure by age and by sex, the potential school-population, the number of old people, the available labour force, its occupational structure and related subjects.

In Israel, current demographic information is obtained as a by-product of administrative records kept, the registration forms as a rule containing additional items required for statistical purposes.

Population Censuses

Since the establishment of the State, two censuses have been conducted in Israel. The first, in November 1948, is known as 'Population Registration', since the main objective was to prepare the poll registers for the first Knesset. The second was held thirteen years later, in May 1961. The enumeration was done in two stages. In Stage A, the entire population was enumerated with the aid of questionnaires which collected basic data concerning characteristics of sex, age, family status, country of birth, year of immigration and type of habitation. In Stage B, a 20% sample of the population was covered and the questionnaires also included items concerning fertility, internal migration, education, employment and housing conditions.

The results are published in the Special Publication Series of the Central Bureau of Statistics.

Population Estimates

Every population estimate must have a certain starting point, usually a population census. Prior to 1961, the estimates of the Central Bureau were based on the Population Registration of 1948; since 1961, on the Population and Housing Census of that year.

Every month an estimate is made of the size of the population, and once a year estimates are computed by sex, age, religion, continent of birth, length of domicile, as well as by place of residence, sub-district and type of settlement. The estimates for the various villages are based mainly on:

- (a) a special questionnaire sent to all villages having less than 2,000 inhabitants;
- (b) changes of address, as notified to the Ministry of the Interior.

The results of the annual population estimates are published in a special publication of the Central Bureau. Besides their administrative uses, the data are needed for the calculation of demographic rates by residential areas and types of settlement. The differences between urban and rural settlements and between sub-districts are largely indicative of, and determined by, differences in the origin of the population and length of residence, rather than the social structure of the individual settlements or climatic and physical conditions.

On the basis of the 1961 census, the population statistics up to 1948 were reconstructed by sex, age, continent of birth and year of immigration. This served two purposes — first, to adjust the figures relating to the structure of the population during the period between the two censuses, in the light of the 1961 census, and, secondly, to combine the data by year of immigration with those relating to continent of birth, sex and age — a combination which did not exist until then. Estimates of these characteristics will make it possible to trace the demographic development of foreign-born residents according to length of residence. On the basis of the 1961 census, suitable corrections could also be made in the population estimates for the various settlements and in classification by type of settlement.

VITAL STATISTICS

Marriage and Divorce

Marriage and divorce statistics are highly developed, and are of great importance for the study of the complex array of factors which affect fertility.

According to the Rabbinical Courts Jurisdiction (Marriage and Divorce) Ordinance 1953, "matters of marriage and divorce of Jews in Israel, whether citizens or residents, shall be within the sole jurisdiction of the Rabbinical Courts".

Jewish marriages are concluded by licensed marriage officers, usually affiliated to, or members of, the local religious council. For Moslems, the competent authority are the Shari'a Courts; for members of the Druze community, special committees for the authorization of marriage; for Christians, members of the clergy duly licensed in that behalf. This ensures full registration of all marriages and divorces.

After the ceremony, the competent authority fills out a marriage certificate in five copies, of which two are delivered to the couple, one is sent to the Ministry of the Interior to change the relevant family status in the Population Card Index, one to the Ministry of Religious Affairs, and one copy is filed by the competent authority. Monthly figures of marriage and divorce, published in the Statistical Bulletin, are based on the reports received by the Central Bureau from the Ministry of the Interior, and the annual processing is based on data obtained from the marriage certificates received once yearly from the Ministry of Religious Affairs.

In view of Israel's special position as a country of immigration from very different social and cultural origins, the investigation of marriage data is of greater significance than is ordinarily the case. Undoubtedly, inter-marriage of persons of different origins and length of residence is highly indicative of inter-cultural integration, both of the couple and of their immediate social environment. The particulars of country of birth and year of immigration appearing in the marriage certificates permit a study of inter-marriage between new immigrants and veteran residents or natives of Israel, and between immigrants from different continents; for this inter-marriage is one of the indexes of successful integration, if not from the economic, at least from a socio-cultural point of view.

During the last few years, further particulars have been added to the marriage forms of non-Jews, concerning family status at the time of marriage, the number of children from previous marriages and the number of years of education of bride and bridegroom. This has made it possible to conduct a more thorough study of marriage patterns in these communities. As well as the gross marriage-rate, i.e., the number of marriages per 1,000 inhabitants, the 'cumulative marriage rate' has recently begun to be computed also, i.e., how many out of 1,000 men or women may expect to marry during their lifetime, assuming that the marriage rates found in a given year are to persist. In principle, this corresponds to the concept of 'total fertility'. The cumulative marriage rate is obtained by summing up the age-specific marriage rates.

Births and Deaths

The data on births and deaths are based on the particulars appearing in the forms 'Notification of Live-Birth', 'Notification of Death' and 'Notification of Stillbirth', which are obtained through the Ministry of the Interior.

According to the Population Registration Ordinance, 1965, it is the duty of the parents and those in charge of the delivery to notify the Ministry of the Interior within ten days of every birth which has taken place. Notification of death is imperative within 48 hours.

The notification of birth is filled out in four copies, of which one goes to the Ministry of the Interior for inclusion of the new-born in the Population Index, one to the Ministry of Health to follow up on vaccinations, one to the Central Bureau, and one is filed in the local registry office. Death notifications are also filled out in four copies — one for the Ministry of the Interior to strike the deceased's name from the Population Index, one for the Ministry of Health to issue a burial licence, one for the Central Bureau of Statistics and one for the local files. For the Jewish population, registration is fairly complete. Almost 100% of deliveries take place in hospital, as well as 90% of stillbirths and two-thirds of all deaths. The forms for deaths which occur outside hospital are likewise signed by a physician. The registration of births among non-Jews may also be regarded as fairly complete, especially since about 80% of deliveries take place in hospital, but there is reason to assume that the registration of deaths is defective, especially among the Bedouin of the Negev. In the non-Jewish population, only 40% of all deaths and about 55% of infant deaths take place in hospital. Recently, particulars on parental education have been added in the birth notification form for Jews, so as to be able to study fertility by social class.

Besides the gross birth rate, total fertility is computed once yearly, i.e., the number of children which a woman may be expected to give birth to during her lifetime, assuming that the birth rates for the different age groups as found during the year in question will continue. It is obtained by summing up the age-specific rates. From the total fertility rate, the gross reproduction rate is calculated, i.e., the mean number of girls born to a woman in the course of her lifetime, regardless of mortality. This is obtained by multiplying the total fertility rate by a coefficient of 0.485, females constituting an average of 48.5% of all births.

By definition, a stillbirth is a birth following at least 28 weeks of pregnancy, death occurring prior to parturition. Practically all Jewish stillbirths occur in hospital, so that, presumably, they are fully recorded. With non-Jews, registration is not yet complete, as appears from the relatively low rate of stillbirths.

The data on miscarriage are based on admission cards obtained from the hospitals, classified by the reason for admission. On the other hand, because of their illegality, there is no regular recording of induced abortions. According to the Criminal Code, 1936, still in force, a person carrying out an abortion is liable to fourteen years imprisonment, and a woman who causes herself to abort is punishable with seven years. Nevertheless, although the law narrowly defines induced abortion and threatens with severe punishment all concerned, it is not strictly observed.

Much attention has been paid to death and infant mortality statistics. The net death rate, i.e., the number of deaths per 1,000 inhabitants, is calculated on a monthly basis. The gross rates, however, are not a satisfactory index of the state of health of the population, as they are largely affected by the age structure. Hence, life tables are computed from the specific death rates by sex and age, which eliminate the effect of the age structure. Life tables are drawn up for the Jewish population only, since, for the non-Jewish population, the registration does not appear to be complete. From the life tables, the following values are published:

- l_x — the number of survivors until the beginning of age x out of 1,000 births;
- q_x — the probability of a person at the beginning of age x dying before reaching the next age;
- e_x — the expectation of life at age x , i.e., the average number of years that a person may be expected to live after reaching age x .

Another indicator which remains unaffected by the age structure of the population is the infant mortality rate. Until 1962, two methods were used by the Central Bureau in computing it:

- (a) the number of infant deaths per 1,000 live births registered during the same period;
- (b) the number of infant deaths out of 1,000 live infants, calculated on the basis of the corresponding mensual infant life table.

The complement of l_x , as obtained from the life table, to 1,000 represents the infant mortality rate (l_x being the number of survivors up to the age of 12 months out of 1,000 live births).

In the second method, infants born abroad who died in Israel are taken into account, as well as annual changes in the number of births. During the mass immigration of 1948-1951, there was a considerable number of deaths among infants born abroad, and the number of births rose from year to year as a result of the population growth due to immigration. It was, therefore, necessary to isolate the effect of these two factors on the infant mortality rate. Since

1952, however, no difference has been found in the rates obtained by the alternative methods. Accordingly, until 1962, the annual infant mortality rates of the Jewish population were still computed by the second method, and the rates for the total and for the non-Jewish population by the first, but, since 1963, the rates for all sectors are simply calculated for every 1,000 live births during the period in question.

To be able to investigate infant mortality by parental characteristics, the cards for infant deaths (for infants born in 1952 and in 1960-1964) were matched with their birth cards, which include parental particulars. The resulting tabulations comprise combinations by continent of birth, period of immigration, age, birth order rank, and so on.

Until 1962, the yearly processing of births and deaths was carried out on the basis of the year of registration; since 1963, it has been based on the year of occurrence. The advantage is that the rates are thus computed on the basis of the average population during the same period of time, and the infant mortality rate can be calculated with reference to the number of live births during the same year.

MIGRATION

In view of Israel's special political situation, practically full control is exercised over border movements. The number of border check-points is limited: the principal transit stations are Haifa Port, Lod Airport and the Mandelbaum Gate (Jerusalem), and, in 1964, 99.5% of all border traffic passed through them. A distinction is drawn between immigrants, residents, temporary residents, tourists, holders of civil permits and day-visitors. The police border check-posts submit current daily reports on border-traffic, thus classified.

Immigration statistics are the most highly developed in the migration series, owing to the great demand for them for purposes of research into demographic aspects and of administration and planning by Government offices and institutions. As well as the daily police report, an individual form is filled in for every immigrant, containing particulars on country of birth, country of residence, nationality, date of birth, sex, family status, number of persons accompanying the head of the family, and occupation. The forms are processed once a month, each time stressing a particular characteristic, and then once a year on a comprehensive basis combining all characteristics. For departing residents, a family form is filled out, showing country and year of birth, local address and cause of departure — whether temporary or permanent. In the case of emigrants, the year of immigration to Israel and the country to which they are emigrating are also noted. A slip attached to the form is handed over

to the departing resident to be delivered on his return at the border check-post, so that departing and returning residents can be easily matched and any who have not returned after one or two more years can be determined even when, on departure, no notice of emigration was given. A special publication on the movement of tourists and residents is issued once a year.

Internal Migration

Statistics on internal migration are important for economic and social planning, such as labour force mobility, the planning, implementation and follow-up of the policy of population dispersal, and town and regional planning. The data are based on notifications of change of address made by residents to the Ministry of the Interior, and on special surveys, including the 1961 census, concerning changes of residence.

POPULATION FORECASTS

The most important data for planning in all economic and social spheres are the projected population figures. Despite the natural limitations of such forecasts, especially as to the extent of future immigration, the Central Bureau has come to the conclusion that their compilation is well worth while in the light of the great demand by bodies engaged in planning, for, without basic data on the number and structure of the future population, no systematic and effective programming for the sectors of the economy and the future need of public services and utilities is feasible.

So far, the Central Bureau has published three forecasts. The first appeared in 1957 and referred to the years between 1955 and 1970. The second referred to 1962-1967 and appeared in 1963. The third, covering a period of seven years up to 1969, contains a full breakdown of the Jewish and non-Jewish sectors by sex and age, and, for the Jewish population, also by continent of birth of foreign-born residents and by the parental continent of birth for native-born. Because of the prevailing uncertainty in regard to the extent of immigration, it was prepared in two parts:

- (a) the development of the population, assuming no increase in immigration and that the birth and death rates found in 1961-1962 would not change;
- (b) forecasts for models of 10,000 immigrants, by continent of origin.

Three alternative forecasts are also presented, based on three different hypotheses as to the extent of immigration.

DEMOGRAPHIC DEVELOPMENT

In Israel, there are many groups with a variety of demographic behaviours, transplanted from their countries of origin. On the one hand were polygamous groups with a tradition of early marriage and no birth control, in which practically all deliveries took place at home and the concept of a maternity ward was unknown, so that infant and maternal mortality were high. On the other hand were groups where marriage and birth customs corresponded to those of progressive Western societies, and with a well-developed tradition in the use of health services. There are also groups differing from each other in food and clothing habits, in housing patterns and hygiene, and in social organization. It is the task of research to find out what happens when such variant groups come into contact with each other and what is the nature of the resulting synthesis, to assess the direction of change as compared to the countries of origin, to evaluate the effect of each successive wave of immigration according to its specific character, and to determine the trend of consequent change. All these matters have so far been investigated only in part, and, although it is not easy to carry out the research in view of Israel's relatively small population, the inherent possibilities have not yet been exhausted.

Israel had to contend not only with the problem of supplying adequate health services to over a million newcomers, but also with the task of familiarizing them with the use of the services, which meant overcoming their ingrained prejudice against modern medicine. It had to provide not only for immigrants from Asia and Africa, who arrived with the typical diseases of underdeveloped countries that lack the most elementary sanitary and hygienic notions, but also for immigrants from Europe of whom most were displaced persons rescued from concentration camps in the poorest physical condition.

This was a heavy burden on the health services, but, as will be seen, the successive waves of immigration were coped with successfully within a relatively short space of time and their state of health was soon brought up to a reasonable standard. The achievement was to no small extent due to the existence of well-developed services, whose foundations had been laid in Mandatory times.

POPULATION ¹⁾

Sources of Population Increase

According to the Population Registration of November 1948, the Jewish population then amounted to 716,678; the non-Jewish was estimated at 160,000 at the end of 1949. In less than seventeen years since the proclamation of the State, the Jewish population had grown by 1,589,600 to 2,239,200 at the end

¹⁾ Data used in the following paragraphs are based on Statistical Abstracts of Israel, 1965.

of 1964, an increase of 245 per cent. Natural increase accounted for 526,800 (33 %) and the migration balance for 1,062,800 (67 %). (See Figure 1, Tables 1 and 2.).

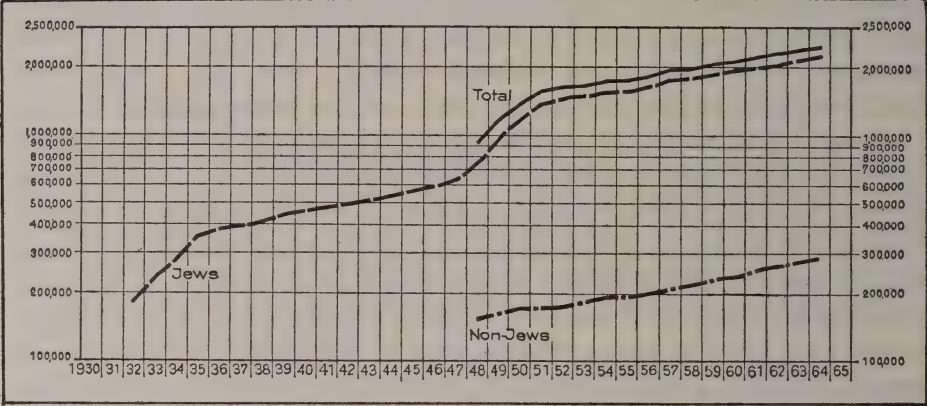


Figure 1. Population, 1932 - 1964

TABLE 1
POPULATION, BY POPULATION GROUPS (Estimates, Thousands)
(1948 - 1965)

Year	Population at End of Year						Mean Population		
	Total Population	Jews	Non-Jews				Total	Jews	Non-Jews
			Total	Moslems	Christians	Druzes and others			
1948	914.7	758.7	156.0	...	...	...	...	671.9	...
1949	1,173.9	1,013.9	160.0	111.5	34.0	14.5	1,059.0	901.0	158.0
1950	1,370.1	1,203.0	167.1	116.1	36.0	15.0	1,266.8	1,103.0	163.8
1951	1,577.8	1,404.4	173.4	118.9	39.0	15.5	1,494.3	1,324.0	170.3
1952	1,629.5	1,450.2	179.3	122.8	40.4	16.1	1,606.2	1,429.8	176.4
1953	1,669.4	1,483.6	185.8	127.6	41.4	16.8	1,650.3	1,467.7	182.6
1954	1,717.8	1,526.0	191.8	131.8	42.0	18.0	1,689.5	1,500.7	188.8
1955	1,789.1	1,590.5	198.6	136.3	43.3	19.0	1,750.4	1,555.3	195.1
1956	1,872.4	1,667.5	204.9	141.4	43.7	19.8	1,828.4	1,626.4	202.0
1957	1,976.0	1,762.8	213.2	146.9	45.8	20.5	1,930.5	1,721.2	209.3
1958	2,031.7	1,810.2	221.5	152.8	47.3	21.4	2,000.1	1,782.7	217.4
1959	2,088.7	1,858.8	229.9	159.3	48.3	22.3	2,062.1	1,836.2	225.9
1960	2,150.4	1,911.3	239.1	166.2	49.6	23.3	2,117.0	1,882.6	234.4
1961	2,234.2	1,981.7	252.5	174.9	51.3	26.3	2,189.9	1,942.0	247.9
1962	2,331.8	2,068.9	262.9	183.0	52.6	27.3	2,288.2	2,030.5	257.7
1963	2,430.1	2,155.6	274.5	192.1	53.9	28.5	2,379.7	2,111.3	268.4
1964	2,525.6	2,239.2	286.4	202.3	55.5	28.6	2,477.5	2,197.1	280.4
1965	2,598.4	2,299.1	299.3	212.4	57.1	29.8	2,562.6	2,269.8	292.8

TABLE 2
SOURCES OF POPULATION INCREASE, JEWS AND NON-JEWS,
1948-1964 (THOUSANDS)

Period	Population at the beginning of period (1)	Natural increase (2)	Migration balance (3)	Total increase (2)+(3) (4)	Population at the end of period (1)+(4) (5)	Percentage of increase (4) : (1) (6)	Percentage of migration balance of total increase (3) : (4) (7)
Total population							
15.5.1948 - 1964	805.6	651.5	+1,065.1	1,720.0*	2,525.6	213.5	61.9
1948 - 1951	805.6	103.7	+ 668.5	772.2	1,577.8	95.9	86.6
1952 - 1954	1,577.8	119.6	+ 20.4	140.0	1,717.8	8.9	14.6
1955 - 1957	1,717.8	121.9	+ 136.2	258.1	1,975.9	15.0	52.8
1958 - 1960	1,975.9	128.1	+ 46.4	174.5	2,150.4	8.8	26.6
1961 - 1964	2,153.8*	178.4	+ 193.4	371.8	2,525.6	17.3	52.0
Jews							
15.5.1948 - 1964	649.6	526.8	+1,062.8	1,589.6	2,239.2	244.7	66.8
1948 - 1951	649.6	88.4	+ 666.4	754.8	1,404.4	116.2	88.3
1952 - 1954	1,404.4	101.4	+ 20.2	121.6	1,526.0	8.7	16.6
1955 - 1957	1,526.0	100.7	+ 136.0	236.7	1,762.7	15.5	57.5
1958 - 1960	1,762.7	102.0	+ 46.5	148.5	1,911.2	8.4	31.3
1961 - 1964	1,911.2	134.4	+ 193.6	328.0	2,239.2	17.2	58.9
Non-Jews							
1948 - 1964	156.0	124.7	+ 2.3	130.4*	286.4	83.6	1.8
1948 - 1951	156.0	15.3	+ 2.1	17.4	173.4	11.2	12.1
1952 - 1954	173.4	18.2	+ 0.2	18.4	191.8	10.6	1.1
1955 - 1957	191.8	21.2	+ 0.2	21.4	213.2	11.2	0.9
1958 - 1960	213.2	26.1	— 0.1	26.0	239.2	12.2	—0.4
1961 - 1964	242.6*	44.0	— 0.2	43.8	286.4	18.1	—0.5

*) Corrected according to 1961 census.

From the establishment of the State until the end of 1964, 1,209,300 Jews entered, compared to 483,000 during the thirty years of British Mandatory rule.

The peak immigration period was in 1948-1951, with 684,200 arrivals. This was followed by approximately three-year cycles of waxing and waning immigration (See Figure 2).

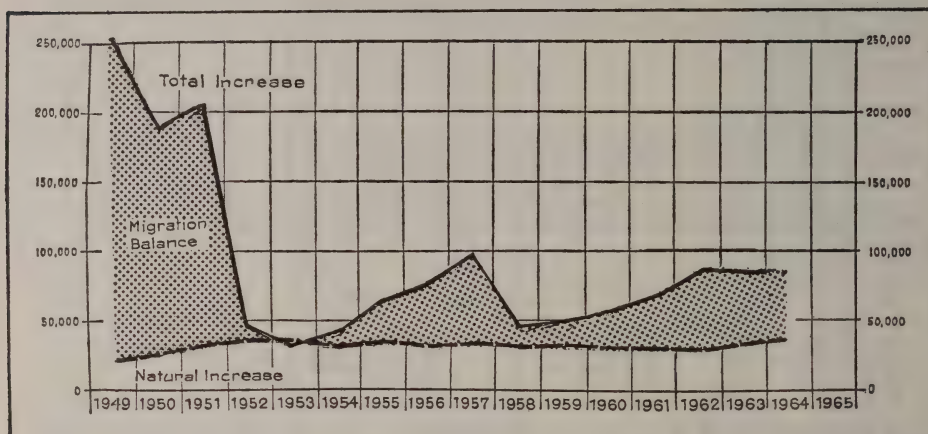


Figure 2. Sources of Increase of the Population, Jews, 1949 - 1964

Between 1948 and 1951, the Jewish population grew by 754,800, of whom 88% were accounted for by the migration balance: between 1952 and 1954, when immigration was at an ebb, the population increase came to 121,600, only 17% being net immigration. With the tide flowing again in 1955-1957, a growth of 236,700 was recorded, 58% of it due to the migration balance. Between 1958 and 1960, that balance made up 31% of the total increment of 148,500, and during 1961-1964 — again a period of rising immigration — 59% of the total increment of 328,000.

The growth of the non-Jewish population, amounting to 130,400, was due predominantly to natural increase (98%). This sector constituted 11% of the total population by the end of 1964, of whom 202,300 were Moslems (71%), 55,500 Christians (19%) and 28,600 Druzes (10%).

Regional Distribution

The bulk of the population is concentrated in the central zone: in 1964, 30.7% lived in the Tel Aviv District, 16.6% in the Haifa District and 8.6% in the Jerusalem District. These three districts, which make up only 8% of Israel's area, thus contained 56% of the total population in 1964 as against 61% in

1948. Respective percentages for the Jewish population were 60 in 1964 and 72 in 1948. The Southern District, covering more than 70% of Israel's area, had only 10% of the population.

The non-Jewish population is concentrated in the north, with 58% in the Northern District and only 8% in the Southern. According to the 1961 census, Christians were concentrated largely in the Jezreel, Akko and Haifa sub-districts (79%), most of the Druzes lived in the Akko and Haifa sub-districts (88%). The Akko sub-district has a majority of non-Jews (60%). (See Table 3.)

TABLE 3
POPULATION BY DISTRICT
31.12.1964

District	Numbers (Thousands)			Percentages		
	Total Population	Jews	Non-Jews	Total Population	Jews	Non-Jews
Total	2,525.6	2,239.2	286.4	100.0	100.0	100.0
Northern District	397.0	232.3	164.7	15.7	10.4	57.5
Haifa District	418.1	361.5	56.6	16.6	16.1	19.8
Central District	459.9	428.1	31.8	18.2	19.1	11.1
Tel Aviv District	775.8	768.8	7.0	30.7	34.3	2.4
Jerusalem District	216.3	211.7	4.6	8.6	9.5	1.6
Southern District	258.5	236.8	21.7	10.2	10.6	7.6

The population density went up from 43 inhabitants per square kilometre in 1948 to 125 by 1964. Population density is highest in the Tel Aviv District, with 4,563 per sq. km., and lowest in the Southern District, with eighteen.

Israel has an overwhelmingly urban population, with 80% living in towns or urban settlements at the end of 1964, compared to 72% in 1948. The relative share of the three major cities Jerusalem, Tel Aviv-Yafo and Haifa, declined from 50% in 1948 to 31% in 1964. 87% of the Jewish population lived in towns or urban settlements, as against 26% of the non-Jewish. The Jewish population in kibbutzim rose by 49% between 1948 and 1964, and constituted 4% of the total population by the end of 1964; yet, over the same period, the population of the moshavim increased by 310%, to 6% of the total. By the end of 1964, the number of kibbutzim was 230, with a population of 81,000, compared to 367 moshavim, with a population of 124,000. Altogether, Israel had 873 settlements (urban and rural) by the end of 1964, of which 771 were inhabited by Jews or had a large majority of Jews. Only 4 settlements had a population of 100,000 and more; 37 had between 10,000 and 100,000, 724 less than 1,000. (See Table 4.)

TABLE 4
POPULATION BY TYPE OF SETTLEMENT, JEWS AND NON-JEWS,
ABSOLUTE NUMBERS AND PERCENTAGES
31.12.1964

Type of Settlement	Numbers (Thousands)			Percentages		
	Total Population	Jews	Non-Jews	Total Population	Jews	Non-Jews
All Types	2,525.6	2,239.2	286.4	100.0	100.0	100.0
Urban Population	2,018.1	1,944.5	73.6	79.9	86.8	25.7
Towns	1,636.9	1,565.9	71.0	64.8	69.9	24.8
Urban Settlements	381.2	378.6	2.6	15.1	16.9	0.9
Rural Population	507.5	294.7	212.8	20.1	13.2	74.3
Villages	256.7	78.1	178.6	10.1	10.1	62.4
Moshavim	124.1	123.7	} 0.6	4.9	5.5	} 0.2
Kibbutzim, Kevutzot	80.9	80.7		3.2	3.6	
Farms, Institutions	10.0	9.9	0.1	0.4	0.5	0.0
Bedouin tribes	31.7	—	31.7	1.3	—	11.1
Living outside settlements	4.1	2.3	1.8	0.2	0.1	0.6

Definitions:

Town: settlement with the status of a municipality;

Urban Settlement: settlement which is not rural, without the status of a municipality;

Moshav: rural settlement in which marketing of produce is collective;

Kibbutz: rural settlement in which production and consumption are collective.

Living outside settlements: population dispersed in small groups living outside the boundaries of any settlement;

Age, Sex, Country of Birth and Period of Immigration

Israel's population is relatively young, compared to that of other countries (see Table 23). The average age of the total population at the end of 1964 was 28.5; 29.4 for the Jewish population and 21.3 for the non-Jewish. The 0-14 age group constituted 33% of the total Jewish population and 52% of the Moslem, 50% of the Druze and 41% of the Christian. The median age of the Jewish population fell from 27.1 in 1948 to 25.0 by 1964, while the average age remained practically the same (29.4). This was due to changes in the lower and higher age groups — a rise in the 0-14 and 45 and over groups, and a decline in the 15-44 group. (See Table 5.)

As a result of immigration, the age structure of the Jewish population at the end of 1964 was more balanced than in 1948. (See Figure 3.)

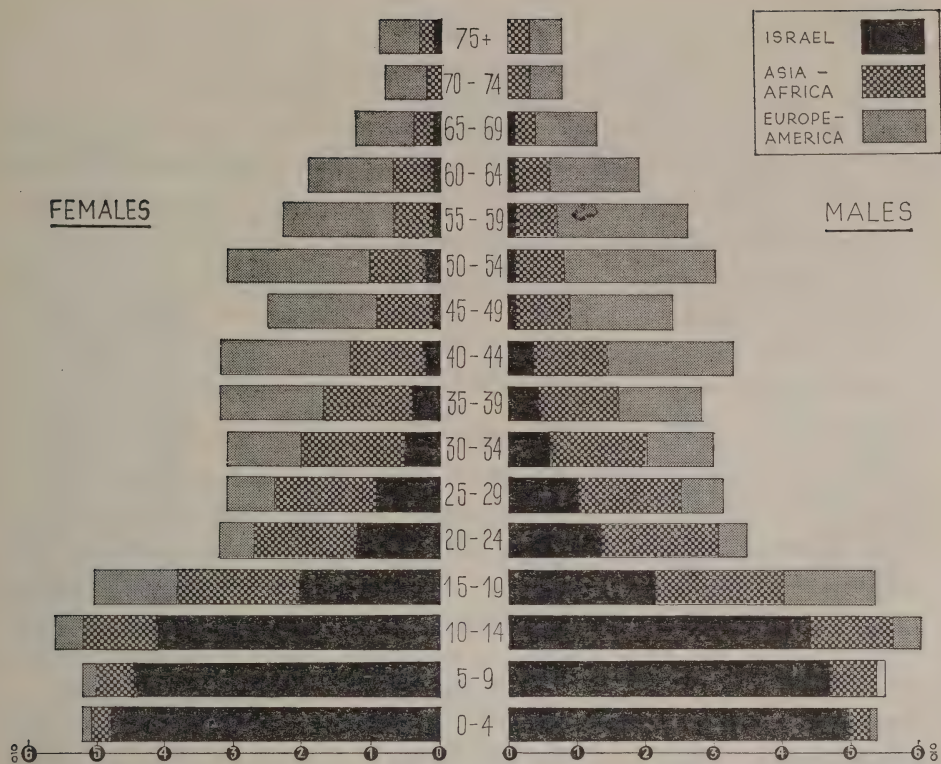


Figure 3. Jewish Population, by Age, Sex and Continent of Birth (Percentages) (31.12.1964)

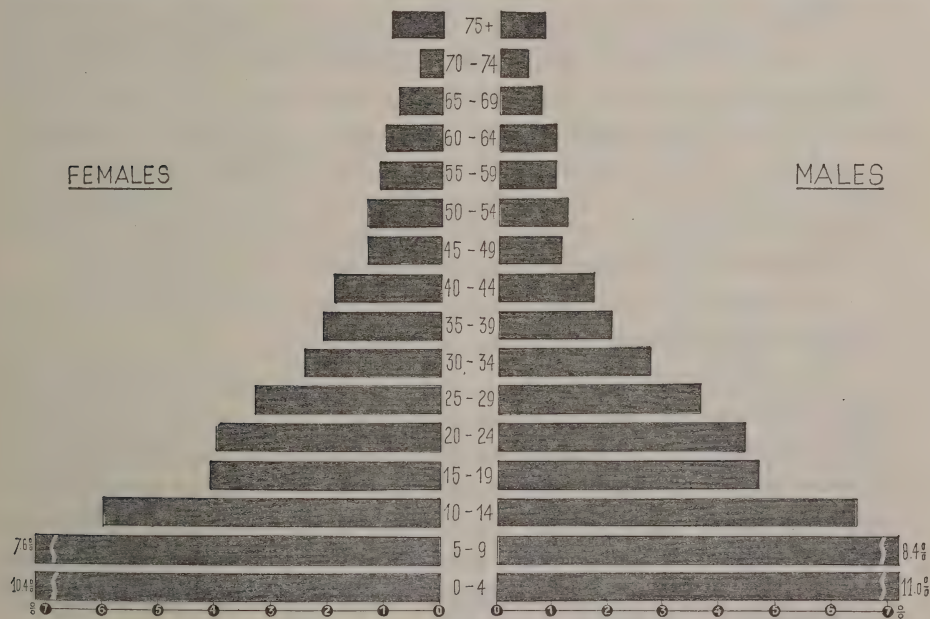


Figure 4. Non-Jewish Population, by Sex and Age (Percentages) (31.12.1964)

TABLE 5
POPULATION BY SEX AND AGE
JEWS AND NON-JEWS, 31.12.1964

Age	Total Population		Jews		Non-Jews	
	Both sexes	Males	Both sexes	Males	Both sexes	Males
Numbers (Thousands)						
All ages	2,525.6	1,277.8	2,239.2	1,131.2	286.4	146.6
Percentages						
All ages	100.0	100.0	100.0	100.0	100.0	100.0
0 - 4	11.8	12.1	10.7	10.8	21.4	21.5
5 - 9	11.4	11.6	10.8	11.0	16.0	16.3
10 - 14	11.7	11.9	11.6	11.8	12.4	12.6
15 - 29	23.2	23.6	23.0	23.4	24.1	24.6
30 - 44	17.8	17.0	18.4	17.6	13.0	12.6
45 - 64	18.5	18.4	19.7	19.8	9.0	8.4
65 +	5.6	5.4	5.8	5.6	4.1	4.0
Average age	28.5	28.2	29.4	29.1	21.3	20.9
Median age	23.5	22.7	25.0	24.3	15.2	14.8

Among Jews born in Israel, the 0-14 age group constituted 70% of the total at the end of 1964, as against only 1% aged 65 years and above. The corresponding percentages for the foreign-born were: Asian-born — 6% for age group 0-14 and 8% for 65 and above; African-born — 23% and 4%, respectively; European-American-born — 4% and 12%, respectively. Among foreign-born immigrants who had come to Israel since 1961, the corresponding percentages were: Asian-born — 35% and 5%, respectively; African-born — 40% and 3%, respectively; European-American-born — 18% and 9%, respectively.

The population of European-American origin is older than the Asian-African. This is true both of oldtimers and newcomers.

At the end of 1964 there were 1,277,800 males and 1,247,700 females in the population — a male preponderance of 50.6 per cent. Among Jews, the percentage of males was 50.5 compared to 51.2 among non-Jews. The percentages of males among Jews were not uniform and varied according to continent of birth and length of residence: the Israel-born showed a rate of 51.2% as against 50.1% for the foreign-born. Among veteran immigrants who had arrived prior to 1947, 51.5% were male compared to 49.7% among arrivals after 1948. (See Table 6.)

TABLE 6
PERCENTAGE OF MALES IN THE JEWISH POPULATION,
BY CONTINENT OF BIRTH AND PERIOD OF IMMIGRATION
31.12.1964

Period of Immigration	Total	Born in			
		Israel	Asia	Africa	Europe America
All periods	50.5	51.2	50.5	50.4	49.7
Up to 1947	51.5	—	51.5	56.8	51.4
1948-1954	50.1	—	50.5	52.7	48.9
1955-1960	49.2	—	49.3	49.5	48.8
1961+	48.9	—	50.2	48.9	48.5

In the 1961 census (2), 8 % of the males in the 30-44 age group were found to be single as against 3 % of the females, compared to 14 % and 7 %, respectively, in 1948. Among the Jewish population, the percentage of persons who had remained single after the age of 65 was very low — only 2 % among males and 3 % among females. This indicates a general trend among Jews to get married.

There are no significant differences between the percentages of Jews and of non-Jews remaining single after the age of 50. The higher rate of single persons among the non-Jewish adult population is due partly to the greater weight of the 15-29 age group (which naturally includes more unmarried persons) among non-Jews (50 %) than among Jews (33 %), as well as to the considerable number of religious celibates among the Christians. (See Table 7.)

TABLE 7
PERCENTAGE OF SINGLE PERSONS AGED 15 AND ABOVE
BY SEX AND AGE, JEWS AND NON-JEWS,
22.5.1961

Age	Jews		Non-Jews	
	Male-single	Female-single	Male-single	Female-single
Total	26.6	16.8	37.3	25.0
15-19	99.0	90.3	96.2	80.9
20-24	75.8	33.8	65.2	30.6
25-29	30.7	9.0	27.0	13.1
30-34	12.7	4.1	10.9	7.6
35-44	5.8	2.5	5.7	5.1
45-54	3.2	2.5	5.3	5.4
55-64	2.5	2.9	4.2	7.1
65-74	2.1	2.7	4.0	8.3
75+	2.4	2.6	5.0	8.5

By the end of 1964, 39% of the Jewish population were Israel-born, 14% were veteran immigrants who had arrived prior to 1947, 28% had immigrated between 1948 and 1954, and the remaining 19% had come between 1955 and 1964. Of the foreign-born, 22.8% were natives of Asia, 24.6% hailed from Africa and 52.6% from Europe-America. The fathers of 15% of the Israel-born population were likewise born in Israel, of 43% — in Asia-Africa, and of 42% — in Europe-America. (See Table 8.)

TABLE 8

JEWISH POPULATION BY CONTINENT OF BIRTH, PERIOD
OF IMMIGRATION AND AGE (THOUSANDS)

31.12.1964

Continent of Birth and Period of Immigration	Total*	0-14	15-29	30-44	45-64	65+	Average age	Median age
Total	2,239.2	740.5	517.8	411.7	439.7	129.5	29.4	25.0
Born in Israel	881.5	615.9	187.6	54.0	18.5	5.6	13.4	10.4
Father born in Israel	132.8	81.6	26.5	14.6	7.8	2.3	16.8	10.9
Father born in Asia-Africa	381.3	327.9	37.5	11.6	3.3	1.0	9.7	7.6
Father born in Europe-America	367.4	206.3	123.6	27.8	7.4	2.3	16.3	13.8
Born in Asia	308.9	18.9	107.7	89.0	68.5	24.8	37.2	34.0
Immigrated up to 1947	46.0	—	5.2	16.1	17.9	6.8	48.3	46.8
1948-1954	222.0	7.2	89.5	65.4	44.5	15.4	36.5	32.7
1955-1960	21.7	4.9	7.5	4.3	3.5	1.6	31.6	25.9
1961+	19.2	6.7	5.6	3.3	2.6	1.0	26.6	20.4
Born in Africa	334.2	75.1	115.4	78.1	54.0	11.6	29.8	26.5
Immigrated up to 1947	6.1	—	0.9	2.6	2.2	0.4	43.6	42.9
1948-1954	105.9	4.7	43.5	34.9	18.9	3.9	33.7	31.5
1955-1960	108.6	24.6	39.8	22.9	17.6	3.7	29.9	25.6
1961+	113.6	45.8	31.1	17.7	15.4	3.5	24.8	18.9
Born in Europe-America	714.6	30.6	107.0	190.6	298.7	87.6	45.7	47.0
Immigrated up to 1947	249.9	—	5.7	64.7	143.9	35.6	52.6	52.4
1948-1954	291.7	1.5	61.6	89.5	101.4	37.7	43.8	44.2
1955-1960	84.6	12.9	20.9	17.3	27.0	6.5	37.6	40.0
1961+	88.4	16.3	18.8	19.1	26.4	7.8	37.2	38.6

* Discrepancies are due to rounding of figures.

As far as the distribution of Jews from different countries of origin in the Jewish population is concerned, the 1961 census shows that the percentage of Jews born in the USSR and in Poland among the foreign-born went down from 46% in 1948 to 27% in 1961, and of Jews born in Germany and Austria from 12% to 5%. On the other hand, a considerable relative increase took place in natives of Morocco, Algeria and Tunisia, from 1% in 1948 to 13% in 1961, and of Iraq from 2% to 10%. (See Table 9.)

TABLE 9
FOREIGN-BORN JEWS BY COUNTRY OF BIRTH AND
PERIOD OF IMMIGRATION, NUMBERS AND PERCENTAGES
22.5.1961

Countries of Birth	Numbers (Thousands)			Percentages		
	Total*	Immi- grated up to 1947	Immi- grated 1948+	Total	Immi- grated up to 1947	Immi- grated 1948+
Total	1,201.9	321.3	880.6	100.0	100.0	100.0
Countries of Birth in Asia	264.2	33.6	230.7	22.0	10.4	26.2
Turkey, Iran	78.9	11.5	67.5	6.6	3.5	7.7
Iraq	123.4	7.7	115.7	10.3	2.4	13.1
Yemen, Aden	61.9	14.4	47.5	5.1	4.5	5.4
Countries of Birth in Africa	216.7	7.2	209.5	18.0	2.3	23.8
Morocco, Algeria, Tunisia	156.8	1.9	155.0	13.0	0.6	17.6
Egypt, Libya	59.9	5.4	54.5	5.0	1.7	6.2
Countries of Birth in Europe	634.4	257.1	377.4	52.8	80.0	42.8
USSR, Poland	319.6	164.8	154.7	26.6	51.3	17.6
Germany, Austria	54.2	38.9	15.3	4.5	12.1	1.7
Czechoslovakia, Hungary	56.3	19.6	36.7	4.7	6.1	4.1
Rumania	155.6	21.1	134.5	12.9	6.6	15.3
Bulgaria	48.8	12.6	36.2	4.1	3.9	4.1
Others and Unknown	86.5	23.5	63.1	7.2	7.3	7.2

* Discrepancies are due to rounding of figures.

Family Size

According to the 1963 Labour Force Surveys(3), the average family size in Israel was 3.8 persons — 3.7 for Jewish and 5.5 for non-Jewish families. Three-person families constituted 19% of all Jewish families and 10% of non-Jewish families; large-sized families of 9 persons and above made up 3% of the total among Jews and 18% among non-Jews. (See Table 10.) Family size among Jews varied according to continent of birth. Where the head of the family was Israel-born, the average size was 3.3 as against 4.8 for Asian-African-born and 3.1 for European-American-born.

TABLE 10
FAMILIES BY NUMBER OF PERSONS IN FAMILY
1963

Number of Persons in Family	Numbers (Thousands)			Percentages		
	Total	Jews	Non-Jews	Total	Jews	Non-Jews
All families	625.5	577.4	48.1	100.0	100.0	100.0
1	72.4	68.6	3.8	11.6	11.9	7.9
2	124.4	119.0	5.4	19.9	20.6	11.2
3	113.5	108.5	5.0	18.1	18.8	10.4
4	134.4	129.0	5.4	21.5	22.3	11.3
5	70.8	65.3	5.5	11.3	11.3	11.5
6	37.6	31.9	5.7	6.0	5.5	11.8
7	26.0	21.2	4.8	4.2	3.7	10.0
8	18.1	14.2	3.9	2.9	2.5	8.1
9 and more	28.3	19.7	8.6	4.5	3.4	17.8
Average size of family (including single persons)						
	3.8	3.7	5.5	—	—	—

By type of settlement, it is seen that the average family size is smaller in urban than in rural settlements, except in kibbutzim. In Haifa, the average family size was 3.3; in Tel Aviv — 3.4; Jerusalem — 3.8; in the moshavim — 5.1, and in the kibbutzim — 2.5.

Labour Force

The 1963 Labour Force Surveys (3) show that, out of a population of 1,600,000 aged 14 and above, 53% belonged to the civil labour force — 77% of the men and 29% of the women in this age group. The corresponding data for Jews alone showed a total participation of 54%: 70% for men and 30% for women. Of the total number of persons participating, 70% were employees, 19% self-employed and members of cooperatives, 6% kibbutz members and 5% unpaid family members. About one third of all the employed were engaged in industry, crafts and building, 12% were members of the free professions, 16% managerial and administrative personnel, 14% farmers and fishermen, and 12% were engaged in personal services. (See Table 11.)

TABLE 11
EMPLOYED PERSONS, BY OCCUPATION AND SEX
1963

Occupation	Total Population			Jews		
	Total	Men	Women	Total	Men	Women
Numbers (Thousands)						
All employed	813.2	597.8	215.4	747.0	540.1	206.9
Percentages						
	100.0	100.0	100.0	100.0	100.0	100.0
Professional, scientific, technical and related workers	12.3	9.0	21.4	12.9	9.5	21.6
Administrative, executive, managerial and clerical workers	15.6	14.8	17.7	16.8	16.3	18.3
Traders, agents and salesmen	8.1	7.9	8.8	8.4	8.3	9.0
Farmers, fishers and related workers	14.0	14.3	13.1	11.8	12.1	11.0
Workers in transport and communications	5.4	7.0	(0.9)	5.5	7.2	(0.8)
Craftsmen, production-process workers and related workers	23.7	27.0	14.5	24.3	28.0	14.8
Construction workers, quarrymen and miners	9.0	12.3	—	7.8	10.8	(0.1)
Services workers	11.9	7.7	23.6	12.5	7.8	24.4

Education

In the 1961 census, the literacy rate among the total adult population (aged 14 and above) was shown to be 84 %, with 88 % for Jews and 48 % for non-Jews. Among Israel-born Jews, it rose to 98 %, while for the Asian-African-born it was 69 %, and for the European-American-born it was 97 %.

Of the adult Jewish population of 1,300,000 aged 14 and above, 13 % had never attended school, 8 % had attended for 1-4 years, 35 % for 5-8 years, 18 % for 9-10 years, 16 % for 11-12 years and 10 % for 13 years and more. Among adult non-Jews, totalling 136,000, 50 % had never attended school, 14 % had attended for 1-4 years, 27 % for 5-8 years and 9 % for nine years and more.

Spoken Languages

According to the 1961 census, the language of close to 80 % of the total population aged 2 years and above was Hebrew, either as a principal or as an additional language. Hebrew was thus used by 87 % of the Jewish and by 14 % of the non-Jewish-population. As a sole or principal language, it was used by 75 % of the Jewish population.

Of those whose principal language was other than Hebrew, 28 % spoke Arabic, 23 % Yiddish, 9 % Rumanian, 6 % German, 6 % Spanish (including Ladino), 6 % French, 5 % Hungarian, 4 % Polish and 4 % Persian.

VITAL STATISTICS

Marriages

Both Jews and non-Jews show a rather high marriage rate, as may also be seen from the 1961 census data cited above. In 1964, the marriage rate for the total population, that is, the number of couples married per 1,000 inhabitants, was 7.7 to 7.8 for Jews and 7.2 for non-Jews.

Marriage rates for the Jewish population reached a peak in the years 1949-1950, with 14.5 in 1950 — the highest ever statistically recorded in the country since the beginnings of modern Jewish settlement. After this, a decline set in and persisted until 1961, since when the rate has stabilized itself. (See Table 12.)

TABLE 12
RATES OF MARRIAGE, DIVORCE, BIRTH, DEATH, NATURAL INCREASE,
INFANT MORTALITY, STILLBIRTH (PER 1,000)
JEWS AND NON-JEWS, 1951-1964

Year	Marriages	Divorces	Live-Births	Deaths	Natural Increase	Infant Mortality	Still-births
Total Population							
1951	11.4	1.7	33.8	6.6	27.2	40.8	—
1955	8.5	1.2	29.2	6.1	23.1	37.3	—
1960	7.8	1.0	26.6	5.7	20.9	31.3	12.8
1963	7.7	0.9	25.0	6.1	18.9	27.5	14.4
1964	7.7	0.9	25.7	6.3	19.4	28.2	13.8
Jews							
1949	13.4	1.7	30.0	6.8	23.2	51.7	18.6
1951	11.8	1.8	32.7	6.4	26.3	39.2	15.0
1955	8.7	1.3	27.2	5.8	21.5	32.4	13.6
1960	7.7	1.1	23.9	5.5	18.4	27.2	13.0
1963	7.6	1.0	22.0	6.0	15.9	22.7	14.5
1964	7.8	1.0	22.4	6.2	16.2	23.9	14.2
Non-Jews							
1951	8.3	0.9	46.5	8.8	37.8	48.8	—
1955	6.7	0.6	46.0	8.6	37.4	62.5	—
1960	8.8	0.5	50.3	7.5	42.8	48.0	11.9
1963	8.5	0.6	48.8	6.3	42.6	44.6	14.2
1964	7.2	0.4	51.4	6.4	45.0	42.6	12.2

The average age of Jewish bridegrooms married for the first time was 26.4 in 1963, and of brides 21.9. In this respect, practically no change had taken place for the last ten years.

Having regard to Israel's particular population structure as a country of immigration of a large variety of ethnic groups with widely divergent social and cultural backgrounds, intermarriage between different Jewish ethnic communities, as for instance between partners of Asian-African and European-American origin, is an indicator of the process of integration. A slow but constant rise has been recorded in the rate of such marriages, from 9% in 1952 to 15% by 1963. If the choice of partner in marriage had been made at random, regardless of ethnic preferences, intermarriages of this kind would have amounted to 49.9% of the total in 1962. The highest rate of inter-communal marriages in 1962 was found in the kibbutzim — 22.6%, followed in descending sequence by Tel Aviv (18.0%), Haifa (16.7%), and Jerusalem (15.3%). The villages ranked lowest with only 8.4%.

Like other heterogeneous populations composed of natives of different countries, the Jewish population of Israel shows a tendency towards the intermarriage of persons of the same origin-group or born in the same country. This trend is more pronounced among the Asian-African-born than among the European-American-born. Intermarriage is also quite frequent between natives of countries related in culture or language, for example, the USSR, Poland and Rumania; Germany, Austria, Czechoslovakia and Hungary; Yugoslavia, Greece and Bulgaria. Research has shown that the tendency to intermarriage within the same national origin-group lessens with the length of residence.

The attraction indexes, indicating the tendency to intermarriage within the same origin-group, are lowest for veteran residents of Israel born in Russia, Czechoslovakia, Germany and Austria, and highest for residents born in Yemen-Aden, Iraq, Tunisia-Algeria and Morocco, most of whom are newcomers. These indexes confirm the impression, also gained in other investigations, that protracted residence reduces the tendency to endogamic marriage.

Among non-Jews, the marriage rate has remained practically constant since 1951. The average age of marriage for non-Jewish single males was 24.5 in 1963, and for single females 20.6, an age difference of about 4 years. Almost no change in the average age had taken place in the previous ten years. Of the non-Jewish bridegrooms married in 1963, 95% were single. The respective rate for brides was 97 per cent.

It should be noted that Moslems and Druzes still adhere to the custom of paying bride-money.

Divorce

The trend of the divorce rate runs parallel to that of the marriage rate, and has been declining since 1951. In 1964, the divorce rate for the Jewish population stood at 1.0 and for the non-Jewish at 0.4.

In 1963, the average duration of marriage of divorced persons among the Jewish population was 8.5 years, 9% having been married for less than a year, 10% from one to two years and 35% more than 10 years. Of the couples divorced in 1963, 45% had children: 25% one child; 13% two children and 7% three and more children.

Births

In 1964, the crude birth rate (the number of births per 1,000 inhabitants) was 22.4 for the Jewish and 51.4 for the non-Jewish population. (See Figure 5).

While the birth rate among non-Jews constantly maintained its high level without significant fluctuations, that of the Jewish population was considerably affected by consecutive cycles of immigration and absorption. (See Table 13). At the end of the Mandatory period, in 1947, the mean fertility rate of Jewish women was 3.5. Following mass immigration, it jumped to 4.0 in 1951,

TABLE 13
BIRTH RATE PER 1,000 POPULATION; JEWS AND NON-JEWS,
1948-1964

Year	Jews	Non-Jews
1948	26.3	—
1949	30.0	—
1950	33.0	—
1951	32.7	46.5
1952	31.6	45.6
1953	30.0	48.4
1954	27.4	45.1
1955	27.2	46.0
1956	26.7	47.1
1957	26.1	46.1
1958	24.1	48.0
1959	24.3	47.4
1960	23.9	50.3
1961	22.5	49.3
1962	21.8	50.6
1963	22.0	48.8
1964	22.4	51.4

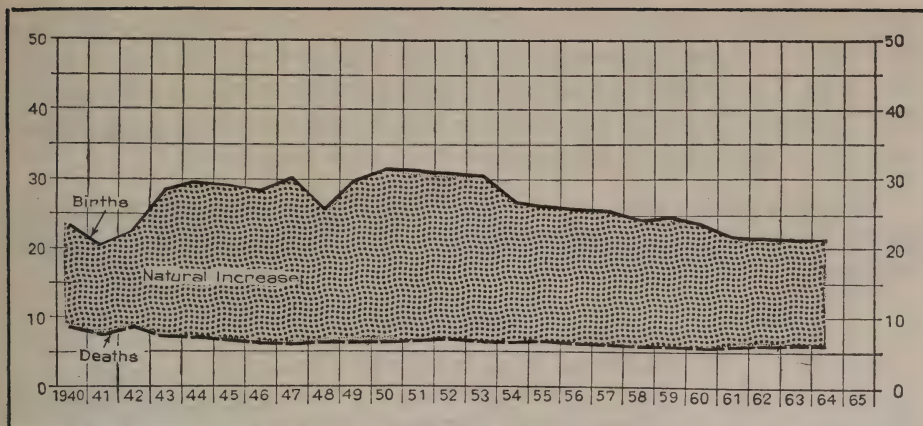


Figure 5. Birth and Death Rates, Natural Increase, Jews, 1940-1964

mainly because of the influx of immigrants from Asia and Africa. A breakdown by continents shows that in 1951 the Israel-born women had a fertility rate of only 3.6 as against 6.3 for natives of Asia and Africa and 3.2 for natives of Europe.

After the peak of 1951, a decline in fertility set in and has continued. This is due to the changing habits of immigrants from Asia and Africa, who increasingly tend to restrict fertility the longer they live in Israel, as is indicated by the total fertility rates of Asian-born and African-born women, by length of residence (see Table 14). From the 1963 figures it may be seen that, while the

TABLE 14
TOTAL FERTILITY* BY CONTINENT OF ORIGIN,
JEWS AND NON-JEWS, 1947-1963

Year	Jewish Women				Non-Jewish Women
	Total	Born in Israel	Born in Asia-Africa	Born in Europe-America	
1947	3.5	—	—	—	—
1948	3.1	—	—	—	—
1949	3.4	3.6	4.5	3.2	—
1950	3.9	3.9	5.7	3.3	—
1951	4.0	3.6	6.3	3.2	—
1955	3.6	2.8	5.7	2.6	6.9
1960	3.5	2.8	5.1	2.4	8.0
1961	3.4	2.7	4.9	2.3	7.6
1962	3.3	2.6	4.8	2.3	7.7
1963	3.4	2.8	4.6	2.4	7.8
Immigrated up to 1947	3.0	—	3.5	2.7	—
Immigrated 1948-54	3.5	—	4.5	2.3	—
Immigrated 1955+	4.3	—	5.3	2.6	—

* The number of children expected to be born to a woman during her lifetime, assuming the birth rates corresponding to the mothers' age found in the given year to remain unchanged

fertility of Asian-African women who immigrated up to 1947 was only 3.5, the fertility of those who immigrated during 1948-1954 was 4.5 and of those who came during 1955-1963 it was as high as 5.3. On the other hand, the total fertility of women of European origin was 2.4 without significant fluctuations with length of residence.

Owing to the low death rate of the Jewish population at all ages, there is no difference in the trend of the net reproduction rates and the total fertility. (See Table 15.)

TABLE 15
NET REPRODUCTION RATES OF THE JEWISH POPULATION
1949 - 1963

Year	Net Reproduction Rate
1949	1.53
1950	1.75
1952	1.79
1955	1.67
1957	1.67
1960	1.63
1962	1.54
1963	1.57

The net reproduction rate is the rate at which a generation would reproduce itself provided that both the birth rate and the death rate remained unchanged and leaving out changes caused by migration. It is based on the proportion of daughters born to the women of this generation who live to become potential mothers in the next generation.

It seems that the decline in fertility is not simply a direct outcome of length of residence, but is also due to changes in social status, occupation, education and income which are largely determined by length of residence.

Thus, the 1961 census indicates a correlation between the level of education and fertility (see Table 16).

It is seen that the higher the level of education, the lower the average number of births. Women who reached the end of their fertile period (age 40-49) without having attended school had an average of 6.7 children; those who had 1-4 years of schooling, an average of 3.9; and those with 13 years of schooling and more, an average of 2.1.

At higher education levels, there is practically no difference between long-resident Asian-African-born women who immigrated up to 1947 and veteran residents of European-American origin of the same educational standard. This means that, when the effects of length of residence and of education are ignored, the differences between Asian-African and European-American women disappear.

TABLE 16

AVERAGE NUMBER OF CHILDREN FROM FIRST MARRIAGE OF
JEWISH WOMEN AGED 40 - 49, BY CONTINENT OF BIRTH,
PERIOD OF IMMIGRATION, AND NUMBER OF YEARS OF SCHOOLING
22.5.1961

Continent of Birth and Period of Immigration	Years of Schooling						
	All Mothers	0	1 - 4	5 - 8	9 - 10	11 - 12	13+
Total	3.2	6.7	3.9	2.7	2.3	2.1	2.1
Israel-born women: total	3.5	6.0	4.8	3.9	2.6	2.6	2.4
Father born: in Israel	3.6	6.2	4.6	3.8	2.9	2.8	2.3
in Asia-Africa	4.7	6.0	5.0	4.6	×	×	×
in Europe-America	2.8	×	×	3.3	2.5	2.4	2.3
Women born in Asia-Africa	6.1	7.0	6.3	4.7	4.1	3.1	3.1
Immigrated until 1947	5.5	7.1	5.2	4.2	3.3	2.8	2.3
Immigrated since 1948	6.2	7.0	6.6	4.9	4.3	3.3	3.5
Women born in Europe-America	2.2	3.6	2.3	2.2	2.1	2.0	2.0
Immigrated until 1947	2.3	4.5	2.8	2.4	2.3	2.2	2.2
Immigrated since 1948	2.0	3.0	2.2	2.0	1.8	1.7	1.7

The main factors affecting the level of fertility are continent of birth, length of residence, education, occupation, income, degree of religious observance, place of domicile and age at marriage. Separate examination of these factors, both in Israel and abroad, has shown a correlation to exist between each individual factor and the fertility level, though it is difficult to determine which factors have a direct impact and which are side-effects of changes in the socio-cultural background.

As a result of immigration from Asia and Africa and the high fertility rate of these immigrants, a change has also taken place in the percentage composition of births. In 1949, women born in Asia and Africa accounted for 20 per cent of all births, women born in Europe and America for 65%, and Israel-born for 21%. In 1963, the corresponding figures for Asian-African-born were 61%, for European-American-born 18%, and for Israel-born 21 per cent.

The average age of Jewish women at their first birth was 23.6 in 1963, and of non-Jewish women 21.6.

In 1963, 25% of all births were first births, 22% fifth to eighth, and 7% the ninth or later birth. Among the Jewish population as a whole, first births represented 27% of the total, 5-8 children — 18%, and 9 and more — 5 per cent. The corresponding figures for the Asian-African-born were 21%, 27% and 8%,

respectively; for the European-American-born — 32%, 5% and 1%, respectively; for the Israel-born — 42%, 4% and 1%, respectively. For the non-Jewish population, the figures were 15%, 34% and 15%, respectively. Among the non-Jews, differences in fertility and birth rate may be noted according to religious affiliation: in 1964, non-Jews had a crude birth rate of 51.4, Moslems a rate of 56.6, Druzes of 47.8 and Christians of 34.7.

Twins constituted 1% of all births, among Jews and non-Jews alike.

The 1961 census shows early signs of effects of birth control even among the non-Jewish population. Educated women were seen to have fewer children than the uneducated. Since the rate of educated women among the non-Jewish population is relatively low, this reduction still has no effect on the total fertility which remains one of the highest in the world.

Extramarital Births

Illegitimate births are no major problem in Israel, because of Jewish Diaspora tradition, transplanted to modern Israel, which has always placed great stress on the family as a defence against assimilation to a foreign environment. In particular this is true of that proportion of the population which is religiously orientated and thus conditioned against illegitimate procreation. Moreover, Israel, like all countries of immigration, has a surplus of men, which enables all women to marry if they so desire. In consequence, the rate of illegitimate births is low as compared with European countries.

Extramarital births constituted 0.3% of all births in Israel in 1960, as compared to 5% in England, 6% in France and 2% in the United States (see Table 23).

It should be noted that Israel civil law makes no distinction between marital and extramarital birth, nor does Jewish religious law discriminate against those born out of wedlock.

Stillbirths

The rate of stillbirths, that is the number of stillbirths per 1,000 live births, among the Jewish population was 14.2 in 1964, as against 18.6 in 1949. Variations may be due to the mother's continent of birth, with 14.8 among the Asian-African-born women in 1960-1963, 12.3 among European-American-born and 10.8 among Israel-born.

The rate of males among stillbirths is higher than among live births, ranging between 55-60%, compared to 51-52% among live births.

A rising rate of stillbirths may thus be observed with the increasing age of the mother, 24.2 in the 35-39 age group compared to 9.7 at the age of 20-24. (See Table 17.)

TABLE 17
RATES OF STILLBIRTHS (PER 1,000 LIVE BIRTHS) AMONG JEWS,
BY MOTHER'S AGE AND CONTINENT OF BIRTH,
AVERAGES 1960-1963

Age	Continent of Birth			
	Total	Israel	Asia-Africa	Europe-America
All ages	13.6	10.8	14.8	12.3
up to 19	8.2	5.7	8.8	7.7
20-24	9.7	8.9	10.8	7.2
25-29	11.8	11.1	12.3	10.5
30-34	16.6	12.4	18.4	13.9
35-39	24.2	} 28.5	25.3	19.0
40+	31.9		31.1	37.1

Deaths

In Israel, the age-specific death rates are quite low, as may be seen from the average life expectancy, which is among the highest in the world.

The crude death rate, (the number of deaths per 1,000 inhabitants), is particularly low, due to the youth of the population. In 1964, the death rate for the population as a whole was 6.3: 6.2 for Jews and 6.4 for non-Jews.

Given a normal age structure of a stable population, a death rate of 6.2 would mean an average life-span of 161 years (1,000:6.2), which of course is absurd. The corrected rate for the Jewish population, on the basis of mortality tables from which the effect of the abnormally young age structure has been eliminated, is 14.2 (1,000:70.2) for males and 13.7 (1,000:72.9) for females.

The crude death rate of the Jewish population has hardly altered since 1949, for, concomitantly with the improvement in health conditions (as may be seen from the mortality tables), a rise took place in the size of the older age groups which have a higher death rate.

The decline in the crude death rate of the non-Jewish population, on the other hand, reflects the improvement in the level of health, since no considerable changes have occurred in the age structure. The death rate among non-Jews declined from 10 during 1951-1952 to 6.5 in 1962-1964. In spite of certain doubts concerning the completeness of registration among the non-Jewish population, registration can scarcely be assumed to have become less complete as time went

on; perhaps, on the contrary, it became more complete. Hence the decline in the death rate may be seen as indicative of a certain slight improvement in health conditions.

Apart from infant mortality, there are almost no differences between Jews and non-Jews in the death rates of the various age groups, while in the higher age groups the rates are even somewhat lower among non-Jews, assuming that their registration is not defective. (See Table 18.) In the Jewish population, too, there are practically no differences in mortality as far as continent of birth is concerned.

TABLE 18
DEATH RATES BY SEX AND AGE, JEWS AND NON-JEWS, (PER 1,000),
AVERAGES 1961-1964

Age	Total Population		Jews		Non-Jews	
	Male	Female	Male	Female	Male	Female
All ages	6.3	5.7	6.3	5.6	6.4	6.7
0	32.1	27.8	28.3	22.0	46.5	50.1
1	2.5	3.0	1.7	1.6	5.7	8.2
2	1.4	1.6	0.9	1.1	3.5	3.9
3	1.0	0.9	0.8	0.7	1.9	1.8
4	0.9	0.9	0.7	0.7	2.2	1.7
0- 4	7.7	7.0	6.5	5.2	13.0	14.4
5- 9	0.6	0.5	0.5	0.4	0.9	1.1
10-14	0.5	0.4	0.4	0.3	1.0	1.1
15-19	1.0	0.6	1.0	0.5	1.3	1.0
20-24	1.3	0.7	1.2	0.6	1.3	1.3
25-29	1.1	0.7	1.0	0.7	1.5	1.2
30-34	1.2	1.1	1.2	1.0	1.5	1.5
35-39	1.6	1.4	1.5	1.4	1.9	1.5
40-44	2.2	2.1	2.2	2.1	2.9	2.3
45-49	3.8	3.4	3.8	3.4	3.9	3.7
50-54	6.7	5.7	6.6	5.6	7.9	5.5
55-59	11.6	9.0	11.7	9.0	9.4	8.9
60-64	20.2	16.1	20.3	16.2	15.1	13.7
65-69	32.8	26.7	33.5	27.4	26.0	23.0
70-74	50.1	42.6	52.2	42.6	36.3	38.2
75+	102.4	99.1	109.7	108.4	82.9	81.0

In Table 19, life expectancy at selected ages \bar{e}_x , as well as number of survivors at selected ages (l_x) for both sexes of the Jewish population of 1964, as computed from life tables, are shown.

TABLE 19
LIFE EXPECTANCY AT SELECTED AGES, (\bar{e}_x), AND
SURVIVORS AT SELECTED AGES OUT OF 1,000 BORN, (l_x),
JEWISH POPULATION, 1964

Age	Life expectancy at selected ages \bar{e}_x		Number of survivors at selected ages out of 1,000 born, l_x	
	Male	Female	Male	Female
0	70.2	72.9	1,000.0	1,000.0
1	71.2	73.5	972.2	979.1
2	70.3	72.6	970.2	977.5
3	69.4	71.7	969.4	976.5
4	68.4	70.7	968.9	975.9
5	67.5	69.7	968.2	975.5
10	62.7	64.9	965.4	973.5
15	57.8	60.0	963.6	972.0
20	53.0	55.1	959.3	969.4
25	48.3	50.3	953.3	965.9
30	43.6	45.5	948.5	963.0
35	38.8	40.7	943.4	957.8
40	34.1	36.0	935.2	950.6
45	29.5	31.4	924.0	939.9
50	25.1	26.9	905.1	923.9
55	20.9	22.6	873.8	898.0
60	16.9	18.5	825.2	858.3
65	13.5	14.9	746.1	789.4
70	10.6	11.8	627.5	686.6
75	8.0	9.0	479.0	552.9

The mortality tables for 1964 show that about two thirds of all persons born, live to the age of 70 and beyond, and 90% to the age of 50 and more. The average lifetime of the Jewish population rose from 65.2 and 67.9 years for men and women, respectively, in 1949 to 70.2 and 72.9 in 1964. (See Table 20 and Figure 6.) Israel is thus an advanced country in point of average life expectancy (see comparative data in Table 23).

TABLE 20
AVERAGE LIFE EXPECTANCY OF THE JEWISH POPULATION
AT SELECTED PERIODS, 1930-1964

Year	Average life expectancy	
	Male	Female
1930-1932	59.9	62.7
1933-1935	59.5	61.8
1936-1938	60.8	64.5
1939-1941	62.3	64.6
1942-1944	64.1	65.9
1949	65.2	67.9
1950	66.3	69.5
1951	67.2	70.1
1952	66.7	69.8
1953	68.0	70.5
1954	67.6	70.5
1955	69.4	72.1
1956	67.9	70.9
1957	68.0	71.4
1958	69.5	72.5
1959	70.2	72.3
1960	70.7	73.5
1961	70.5	73.6
1962	70.8	72.8
1963	70.8	72.9
1964	70.2	72.9

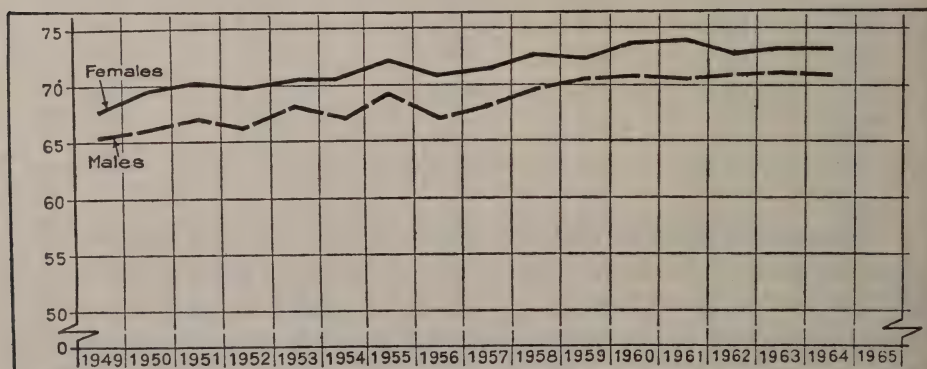


Figure 6. Average expectation of life, by sex, Jews, 1949-1964

Infant Mortality

In infant mortality, the improvement was even greater. Following mass immigration after the establishment of the State, the infant mortality rate in the Jewish population soared from 29.1 per 1,000 births in 1947 to a record height of 51.7 per 1,000 in 1949. Within five years, by 1954, the rate was reduced to 34.1, and then to 24.6 by 1961-1964 — a drop of 52% within 16 years.

It should be noted that the high infant mortality rate in the Jewish population during the first years of statehood was due to the influx of masses of immigrants with a low health standard and a profound ignorance of basic hygiene. As the 1961 census has shown, the mortality rate of children up to the age of 4 among Jews in Africa and Asia, prior to their immigration, had been extremely high (5). The greatest reduction took place in the mortality of infants aged from one to eleven months. While the mortality of infants less than one month declined by 29% between 1949 and 1964, deaths of infants aged between one and eleven months fell off by 73 per cent.

Natural Increase

Concomitantly with the birth rate, the rate of natural increase of the Jewish population was at its highest during the period of mass immigration. In 1950, it amounted to 27 per 1,000 inhabitants, whereafter it declined steadily, as a result of the drop in the birth rate, to 16 in 1964. The non-Jewish population, on the other hand, recorded a rise in natural increase, from 36 in 1951-1952 to 44 in 1962-1964. This was partly due to the diminishing death rate, from 10 in 1951-1952 to 7 in 1962-1964, while the birth rate was static at close to 50 births per 1,000 inhabitants. The share of the non-Jewish population in the total natural increase thus rose from 15% in 1951 to 26% in 1964.

Contraception and Induced Abortions

Research in this field has been limited. The first study of this kind was conducted between August 1959 and March 1960 by Bachi and Matras (6) on 3,000 Jewish maternity cases. Contraceptives were used by 40% of all the women interviewed. In Tel Aviv-Yafo, it was found that 62% practised coitus interruptus, 23% used condoms, 6% — diaphragms, 5% — the 'safe period' method, 3% — permanent pessaries, and 1% — other means. The most remarkable finding was that coitus interruptus was the most common method used among all strata of the population, regardless of whether the women were religious or not.

The investigation also concerned itself with induced abortion as a means of limiting births. The data refer both to medical and voluntary abortion, since the women were not asked for the reason for the termination of pregnancy. But, as the number of cases in which abortion is medically indicated is small, it may well be ignored. It was found that 10% of the women interviewed had aborted at least once, and, of these, one third more than once. Of the European-American-born women, 20% had abortion induced, as against 11% of the locally born women and 5% of those born in Asia or Africa. The national average thus stands at 10%, which is closest to the rate for Israel-born women. This is easily understandable, for that group constitutes the mean between the two extremes — the European and the Oriental — both in origin and in attitude (see Table 21). Variations according to length of residence, level of education, and the wife's and the husband's occupation were noted in the Asian-African origin-group but were less pronounced among natives of Israel and the European-American-born.

TABLE 21
USE OF CONTRACEPTIVES AND INDUCED ABORTION,
JEWISH MATERNITY CASES BY CONTINENT OF BIRTH
AND PLACE OF RESIDENCE
1959—1960

Continent of birth	Number of maternity cases	Percentages	
		Used contraceptives	Had abortion induced
All places of residence			
Total	3,006	40.5	9.7
Israel	662	60.6	11.1
Europe-America	756	64.0	20.8
Asia-Africa	1,588	24.8	4.8
Jerusalem			
Total	582	42.0	6.0
Israel	198	52.7	6.5
Europe-America	94	50.4	10.3
Asia-Africa	290	32.1	4.3
Tel-Aviv-Yafo			
Total	1,444	52.8	16.0
Israel	331	57.7	15.7
Europe-America	438	61.4	22.2
Asia-Africa	675	44.7	12.2
Other places of residence			
Total	980	36.4	8.4
Israel	133	66.2	10.5
Europe--America	224	67.1	21.4
Asia-Africa	623	18.9	3.2

There are no significant differences between the educational status of those who did and those who did not have induced abortions within the European-American-born and the Israel-born group, but, among Asian-African-born women, these two factors are functionally related: those who had induced abortions had comparatively higher education. For women with 13 years of schooling or more, however, no differences was found between the Asian-African and the European-American groups, one third of both having had induced abortions. As might have been expected, a definite relationship was found to exist between the degree of religious orthodoxy and the tendency to induced abortions: 19% of non-religious women had induced abortions compared to 10% of the 'observant' and only 3% of the ultra-orthodox.

In a survey conducted in 1963 by Polishuk and Halevi (7) among 3,095 women in the Haifa area, the rate of women who had induced abortions was found to be somewhat higher, amounting to 23% for women of European-American origin as against 7% for women of Oriental origin, excluding Yemenites, and 2% for women of Yemenite origin.

The subject has also been dealt with in a study by Halevi and Brzezinski (8), who, for lack of appropriate data, make no distinction between miscarriage and abortion. The material relates to the Jewish population prior to 1953, the main objective being to establish differences in the extent of abortions between women from different continents. The authors reached the following conclusions: induced abortions are a major cause of hospitalization in Israel, and one out of four women of the reproductive ages were admitted to hospital for that reason. Significant differences were found to exist between women born in different countries, the highest rate being recorded among Israel-born women, European-American-born women ranking next, while the lowest rate was noted among women of Asian-African birth. The abortion rate per 1,000 women in fertile age groups was higher among veteran residents than among new immigrants — a conclusion which holds also in comparing the respective rates per 1,000 births. The rate of abortion was also found to vary with the country of origin. In a comparison of rates for women from four Oriental countries, it was found that the Yemenites had the lowest rate, Iraqi and North African women the highest, and Turkish women intermediate rates. In summing up, the authors state that, although most abortions were recorded by the hospitals as 'spontaneous', a certain percentage of such may be regarded as disguised artificially induced abortions. To illustrate the extent of the problem we would note that, in 1962, 13,590 women were admitted to hospital for abortions, representing 7% of all admissions in that year, compared to 6,008, or 9% of admissions, in 1952.

A survey of non-Jewish women was conducted in 1964 in a number of hospitals and health centres, showing that close to 10% of the women investigated practised some kind of birth control.

MIGRATION

Immigrants

With the establishment of the State of Israel, a wave of enthusiasm swept entire exilic communities, especially in Asia. In Europe, there were powerful incentives for moving to Israel, regardless of economic conditions. In addition, the enormous tension accumulated within the Jewish community of Israel in its prolonged underground struggle against the Mandatory regime for free immigration was suddenly released when the gates of the country were at last opened wide, so that all the organizations which had previously engaged in engineering illegal immigration suddenly found the freest of outlets for their activities. An unprecedented stream of immigration was thus set in motion, and the declared readiness of the State of Israel to absorb all Jewish arrivals lent it greater force. Whole communities, from Yemen, Iraq, Libya, for example, were transported to Israel, in a great leap of several centuries from a primitive feudal civilization to a modern society. (See Figure 7, and Table 22.)

From the proclamation of the State until the end of 1964, 1,213,600 Jews arrived, compared to 483,000 throughout the Mandatory period.

Mass immigration started in September 1948 and went on until July 1951. This wave comprised most of the survivors of Nazi persecution who had been left homeless at the end of World War II and were living in DP camps, as well as the 'illegal' immigrants deported by the Mandatory authorities to transit camps in Cyprus. During the same period, most of the immigrants from Yemen (1949/50) and from Iraq (1951) arrived. The ratio between the number

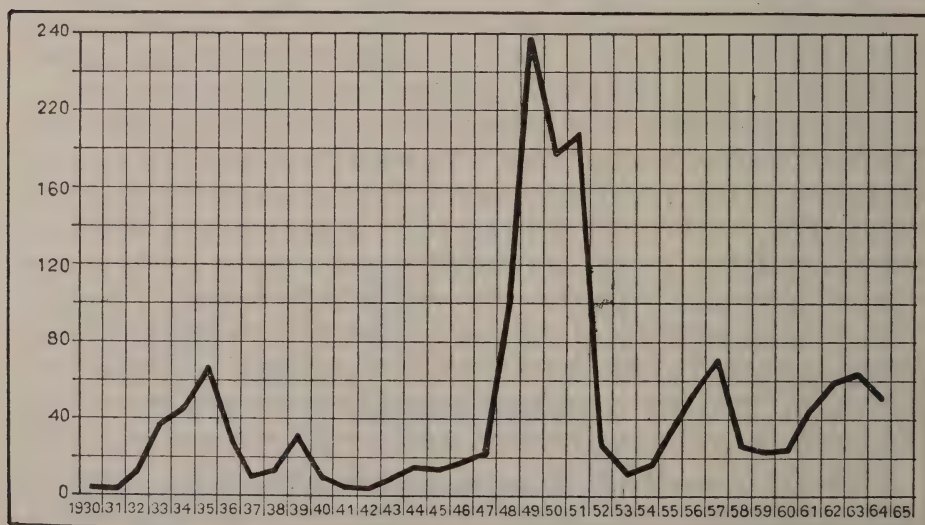


Figure 7. Immigration, (Jews) 1930 - 1964, (Thousands)

of immigrants and the local population reached a high-water mark in 1949, with 266 immigrants per 1,000 inhabitants. Subsequent waves of immigration brought mainly newcomers from North Africa, Persia, Rumania and Poland.

TABLE 22
JEWISH IMMIGRANTS BY PERIOD OF IMMIGRATION
1948 - 1964

Period	Number of Immigrants *	Number of Immigrants per 1,000 Residents (Annual Average)
15.5.1948 - 1964	1,209,282	44.6
15.5.1948 - 1951	686,748	170.3
1952 - 1954	54,065	12.3
1955 - 1957	164,936	33.6
1958 - 1960	75,487	13.7
1961	173,330	28.5
1964	54,716	25.0

* including 20,200 tourists settling.

As a result, Israel became the home of 16% of all the Jews in the world in 1964, compared to 6% when the State was established. Immigration was non-selective as regards physical and mental condition, and most immigrants were destitute.

Of the immigrants who arrived between 1948 and 1962, 31% were children up to the age of 14, 65% were of working age, between 15 and 64, and the remaining 4% were 65 years old and more. Correspondingly, 39% of all immigrants from Asia and Africa were children up to the age of 14, 58% belonged to the 15-64 age group and 3% were over 65 years, while the age distribution of European-American immigrants was 22%, 73% and 5%, respectively. The abnormal age structure of the European immigrants is due to the fact that children born around 1940 were particularly hard hit by the Nazi persecutions and only few survived. From Asia and Africa, on the other hand, whole families immigrated, so that the age structure of this group was more normal. The highest proportion of males was found in 1948-1949, when they accounted for 52.2% of all immigrants. In the years 1950 up to 1957 the proportion was not stable. Starting from 1958, the percentage of males kept dropping and came down to 49.2 per cent in the years 1960-1962. By marital status, 34% of the male immigrants aged 15 years and more between 1948 and 1962 were single, 62% married, 1% divorced and 3% widowed, compared to 22% single and 61% married women, 1% divorcees and 16% widows. The average family size (including single persons) of the immigrants who arrived between 1948 and 1953

was close to 2.2. 1954 marked the beginning of a new wave of immigration from North Africa, which brought about an increase in family size, up to 3.5 during 1955-1956, with a subsequent drop to 2.4 in 1960. With the renewal of extensive immigration in 1961, the size of the average family mounted again to 3.4 by 1962.

Of the immigrants from Asia and Africa who arrived in 1955-1962, only 27% were potential breadwinners, compared to 42% of those coming from Europe and America. Members of the free professions accounted for 6% of the Asian-African breadwinners, compared to 23% of the European-American immigrants, the corresponding share of persons engaged in commerce and salesmanship being 11% and 5%, respectively. On the other hand, industrial workers and craftsmen made up 49% of the working population among Asian-African immigrants, compared to 40% of European-American immigrants. Using the extent of employment as a yardstick for integration, it may be said that all immigrants were duly absorbed.

Residents

Between 1948 and 1964, 823,365 residents left the country for various purposes and 649,447 residents returned during the same period. Of the 173,918 who did not return, 91,981 declared that they were emigrating, while 54,754 had stayed abroad for more than one year and 27,183 for less than one year at the end of 1964. The average stay abroad of returning residents in 1963 was 5 months, the median stay 50 days. The annual number of emigrants during 1961-1964 was estimated at close to 10,000, constituting 0.4% of the population.

Tourists

From 1948 until 1964, 1,429,178 tourists visited and 1,374,845 left Israel, so that the balance by the end of 1964 was 54,333, of whom 21,000 settled in the country permanently.

Internal Migration

In 1964, 225,300 residents changed their address — 135,900 moving from one place to another and 89,400 changing their residence within the same locality. This means that close to 10% of the total population changed their address. The corresponding figures for the Jewish population were 133,400 removals from one place to another and 87,400 within the same place; and for non-Jews — 2,500 and 2,000, respectively. These data relate only to those who notified the authorities of the change. From the 1961 census, which also included a question concerning place of residence in 1956, it was seen that only the

Southern and Tel Aviv Districts had a favourable migration balance, with more people entering than leaving. The most unfavourable balance was found in the Northern District. The targets of internal migration, by order of priority, were the Tel Aviv District, which had first preference, followed by the Southern, Central, Jerusalem, Haifa and Northern Districts.

POPULATION FORECASTS

The latest forecast, relating to the period up to 1969 (9) was based on three different assumptions concerning the scope of immigration from different continents. According to the first assumption, the total population would amount to 2,850,000 by the end of 1969 and the Jewish population to 2,500,000. The second assumption stipulates that the projected population by 1969 would be 3,000,000 and the Jewish population 2,650,000. Under the third, the population would reach 3,070,000 — 2,720,000 of them Jews.

The annual rate of growth of the non-Jewish population is 4.0%. According to the second assumption, non-Jews are expected to constitute 11.6% of the total population by 1969, according to the third — 11.4%.

Whichever assumption is adopted, a uniform downward trend is foreseen in the proportion of the 0-14 age group among the Jewish population, with a corresponding increase in the share of the working and older age groups. The weight of the 0-14 age group in the non-Jewish population, on the other hand, already now unusually high, is expected to rise to close to 50% by the end of 1969.

According to the second assumption, natives of Israel will constitute 43% of the total Jewish population by the end of 1969, with 26% Asian-African-born and 31% European-American-born. At the ages of 0-14, Israel-born children would account for 86% at the end of 1969. Asian-African-born children for 9% and European-American-born for 5%. 16% of the Israel-born children of the 0-14 age group would have an Israel-born father, 59% an Asian-African-born father, and 25% would be of European-American parentage.

TABLE 23

MAIN DEMOGRAPHIC CHARACTERISTICS OF SELECTED COUNTRIES

Characteristic	Year	Country										
		Sweden	United Kingdom	France	Italy	United States of America	Argentina	Japan	Egypt	Israel		
										Total	Jews	Non-Jews
Population (Thousands)	1962	7,562	53,441	46,998	50,170	186,656	21,418	94,930	27,285	2,288	2,030	2,58
Density per sq. km (including inland lakes)	1962	17	219	86	167	20	8	257	27	111	—	—
Average life expectancy	1962	71.6	68.0	67.3	65.87	66.8	56.910	66.2	51.64	—	70.8	—
	Female	75.4	74.0	74.1	70.0	73.4	61.4	71.1	53.8	—	72.8	—
Net reproduction rate	1961	1.1	1.18	1.4	1.2	1.7 2	1.4	0.9	2.88	1.81	1.6	3.8
	1962	14.2	18.3	17.7	18.7	22.4	22.1	17.0	41.2	24.9	22.0	50.6
Birth rate	1962	10.1	11.9	11.5	10.1	9.4	8.0	7.5	17.8	5.7	5.5	7.5
Death rate	1963	4.7	6.42	6.5	8.9	12.0	13.9	10.2	23.42	18.9	15.9	42.6
Rate of natural increase	1962	15.3	22.4	25.7	40.8	25.3	62.1	26.5	133.9	32.6	27.5	47.5
Infant mortality rate	1960	13.9	20.2	17.3	23.8	12.7	25.2	30.8	7.9	12.8	13.0	11.9
Rate of stillbirths	1959	10.4	4.9	6.1	2.5	2.2	24.06	1.57	0.08	0.34	0.3	0.2
Percentage of extramarital births	1962	7.1	7.5	6.7	8.1	8.5	6.5	9.8	8.4	7.4	7.3	8.2
Marriage rate	1961	28.9	28.02	28.4	29.2	28.45	29.84	28.1	30.2	28.8	29.3	25.2
Average age at marriage: bridegroom	1960	26.5	25.0	25.7	25.1	25.2	25.9	24.8	22.6	24.2	24.7	20.5
bride	1960	1.2	0.5	0.7	—	2.2	—	0.7	2.5	1.0	1.1	0.5
Divorce rate	1960	49.9	48.4	48.6	49.0	49.3	50.0	49.1	50.3	50.7	50.7	51.2
Percentage of male population	1960	22.0	22.8	25.6	24.7	31.1	28.93	30.0	42.8	36.0	34.8	45.6
Percentage of age groups	1960	12.0	11.9	12.0	9.1	9.2	5.2	5.8	3.5	5.0	5.0	4.5
0-14												
65+												
Percentage of gainfully occupied	1960	43.3	47.8	41.32	42.25	39.0	38.0	47.1	29.9	33.1	34.7	20.5
Total		60.9	65.9	55.7	62.7	53.8	58.9	58.5	54.8	48.6	50.1	36.2
male		25.7	30.9	27.6	22.5	24.6	17.2	36.2	4.8	17.3	18.9	4.0
female												
Percentage of persons engaged in												
agriculture, fishing, animal	1960	13.8	4.2	19.82	26.51	6.5	19.2	29.0	56.7	17.1	14.5	48.0
husbandry, hunting	1960	27.2	20.03	37.02	52.33	30.1	37.510	36.5	62.0	23.3	16.9	74.8
Percentage of rural population												
Percentage of illiterate persons												
above the age of 15 years	1960	0.112	1.59	3.411	12.99	2.25	8.6	1.7	73.7	15.73	12.1	51.7

1 1963 2 1962 3 1961 4 1960 5 1959 6 1958 7 1957 8 1955 9 1951 10 1947 11 1946 12 1930

Source: Demographic Yearbooks U.N. 1960, 1961, 1962, 1963.

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HEALTH LEGISLATION

When the Government of Israel replaced the British Mandatory administration, it inherited legislation which covered the main public health areas considered relevant at that time. The first legislative authority of the new State, the Provisional Council, left this legislation in force with only a few amendments. Section 11 of the first constitutional law of Israel — the Law and Administration Ordinance, 5708—1948 — stipulated that all previous Palestinian legislation was to hold good, insofar as its provisions did not conflict therewith or with any future legislation or with circumstances arising out of the establishment of the State and its authorities. Since, by its very nature, health legislation satisfied these conditions, it was kept on, with one constitutional modification: the full executive authority for it now passed from a British High Commissioner to an Israel Minister of Health. As is customary in a democratic regime, the Minister is responsible to Parliament (Knesset) for whatever he or his staff do.

It is commonplace that the law of a country is a function of its economic, social and political conditions. The nature and content of the public health legislation of the Mandatory Administration derive from the fact that it was designed to lay foundations for public health in a backward and under-developed territory under semi-colonial rule.

The following is a summary of its principal elements:

1. *The Public Health Ordinance, 1940*

This is a fundamental statute of 73 sections, dealing with most of the important areas of public health. It has been amended several times, particularly since the establishment of the State.

There are seven parts: Definitions; Constitution of Areas and Authorities; Notification and Registration of Births and Deaths — Burial Grounds; Infectious Diseases, Hospitals and Vaccination; Anti-malarial Provisions; Sanitary Provisions; Miscellaneous; and an appendix enumerating notifiable infectious diseases.

The Ordinance lays down the form of organization of the governmental health services: district and sub-district offices are responsible for all public health functions specified in it.

It quickly became clear to the Ministry and to the population in general that the Ordinance did not meet the changed situation. The question is whether to amend it or draft an entirely new and basic measure. Opinions expressed in the Knesset and in other interested circles point to a preference for the second course.

2. *Quarantine Ordinance*, Chapter 124
3. *Pharmacists Ordinance*, Chapter 110
4. *Midwives Ordinance*, Chapter 93
5. *Quarantine Rules*
6. *Public Health (Rules as to Food) Ordinance*, 1935
7. *Municipal Corporations (Sewerage, Drainage and Water) Ordinance*, 1936
8. *Quarantine (Rat Prevention) Rules*, 1936
9. *Dangerous Drugs Ordinance*, 1936
10. *Dangerous Drugs Rules*, 1936
11. *Rabies Ordinance*, 1934
12. *Trades and Industries (Regulation) Ordinance*, Chapter 143
13. *Trades and Industries (Regulation) Rules*, Chapter 143
14. *Accidents and Occupational Diseases (Notification) Ordinance*, 1945
15. *Dentists Ordinance*, 1945
16. *Medical Practitioners Ordinance*, 1947.

One may add several important laws of relevance: *Factories Ordinance*, 1946; *Intoxicating Liquors (Manufacture and Sale) Ordinance*, 1935; *Slaughter-House Rules*, 1927; *Town Planning Ordinance*, 1936.

Legislation during 1948-1964

Existing legislation has not been completely repealed, although material amendments and regulations have been introduced, and new laws passed, in the main:

1. *Amendment to the Public Health Ordinance*, 1940, authorizing the Minister to modify (as he has, indeed, done) the list of notifiable diseases.
2. *Amendment to the Dentists Ordinance*, 1945, renewing the temporary authorization of the Minister to grant permits to practise to non-holders of diplomas of acknowledged Schools of Dentistry, if certain requirements are satisfied.

3. *Amendment to the Dangerous Drugs Ordinance, 1936*, prohibiting the cultivation of poppies.

4. *Midwives Ordinance (Amendment) Law, 1960*

This provides for the issue of temporary licences and permits to practise. Whenever the Director of Medical Services thinks fit, or pending completion of the formalities for the issue of a licence, he may grant a temporary licence to practise for a period not exceeding one year, which he may extend for one more year. He may also grant such licences to midwives temporarily resident.

5. *Pharmacists Ordinance (Amendment) Law (No.1), 1960*

The list of poisons in the First Schedule to the original Ordinance had not been altered since its enactment. Advances in the medical and pharmaceutical sciences in the last forty years and anticipated developments make alteration and modification necessary, and the Minister was, therefore, given the authority to vary and amend whenever the need should arise. At the same time, the validity of permits granted to non-pharmacists to trade in poisons was limited to one year.

6. *Pharmacists Ordinance (Amendment) Law (No.2), 1964*

The principal points are as follow:

The ownership of a pharmacy shall be vested in a licensed pharmacist and cannot be transferred except to one. Every pharmacy shall be professionally managed by a 'responsible pharmacist', i.e., a pharmacist with at least two years' experience in pharmacy. The Minister may, by order, prescribe uniform prices for medicines, vaccines and sera sold by retail in pharmacies. The price list shall be available in any pharmacy. The Minister is empowered to make regulations which prohibit and restrict the advertisement, in various forms, of pharmaceuticals, drugs and substances said to have curative effect. In the same manner, he may determine the conditions under which pharmacies and drug-rooms are to be operated, and rosters of pharmacies for days and hours when pharmacies are usually closed.

7. *Public Health Ordinance (Amendment No.2) Law, 1961*

The prohibition originally imposed on the performance of burials without prior authorization excluded burials to be performed in localities without a district health office. Nowadays, when regular means of transportation are easily available and authorization can be obtained without unreasonable delay, the exclusion is unnecessary and has been cancelled.

Where a Medical Officer of the District Health Office or a physician empowered in that behalf by the Director of Medical Services considers, or

suspects, that death was not due to natural causes, he shall notify the Police and grant the death certificate only after notification from the Police that there is no objection to its issue.

8. *Public Health (Rules as to Food) Ordinance (Amendment No. 2) Law, 1961*

Under the original Ordinance, any food exposed for sale which is adversely affected by decomposition, contamination or any other cause may be seized by any Medical Officer or Sanitary Inspector, to be dealt with by a Magistrate, who, if satisfied that it is unwholesome or unfit for human consumption, shall order it to be destroyed. The amendment abolishes the need for a court order, and the food may now be destroyed on the instructions of a Medical or Veterinary Officer of the Government or the local authority.

9. *Red Shield of David Law, 1950*

This authorizes the Magen David Adom Association to carry out the tasks assumed by national Red Cross Associations in countries signatory to the Geneva Conventions.

10. *Anatomy and Pathology Law, 1953*

The Law allows the dissection for scientific purposes, by a recognized Medical School, of bodies of such deceased as gave their consent to it or of other persons not claimed, in the prescribed manner, by the person entitled to claim them for burial. A person having in his possession such a body otherwise than for purposes of burial shall notify the Medical School and hand it over to it on demand. The provisions of the Public Health Ordinance, 1940, as to burial shall not apply to such bodies.

The dissected parts shall be buried in accordance with the law of the religious community to which the deceased belonged, not later than a year from the day when the body was received by the Medical School. The Medical School may, however, retain the entire body or part thereof if the deceased gave his written consent, or the person entitled to claim the body has not objected.

A physician may operate on a body to ascertain the cause of death, or so as to use a part for the curative treatment of a living person, if it is confirmed by a certificate of three physicians that the operation serves one of these purposes.

11. *Treatment of Mentally Sick Persons Law, 1955*

No person shall be admitted into a mental hospital without a medical certificate. The medical director of such a hospital may, however, admit a person without a medical certificate if, after examination of the person, he is satisfied that no delay was permissible, or if the person himself asked to be admitted.

If any person opposes admission of a sick person, the patient shall not be admitted without approval of the district psychiatrist. Where the district psychiatrist is satisfied that a sick person is likely to endanger himself or anyone else, he shall direct his admission in writing.

A court may order the admission of any person tried before it, if it is satisfied that he is unfit to stand trial because of his illness or is not liable to punishment on the same ground.

A physician may require an admission if he is of the opinion that hospitalization cannot be deferred, but the patient shall be discharged if admission is not approved by the district psychiatrist within five days.

Any person may submit an objection to a hospitalization (except hospitalizations carried out by court order) to a psychiatric board appointed by the Minister.

A district psychiatrist may enter any hospital and therein conduct any investigation or examination which, in his view, is necessary for the efficient supervision and treatment of patients and for compliance with the provisions of the law.

A hospital director may discharge a patient after a medical examination has proved that he has recovered. Where, however, a patient has been hospitalized by court order, he must appear before a medical board which shall order and prescribe the time for discharge.

Where a relative or guardian of a patient objects to his discharge, he shall only be discharged with the approval of the district psychiatrist.

Where the director objects to a demand for discharge, the applicant may submit an objection to the psychiatric board against that decision.

A director may tentatively discharge a patient for a specific period or for a temporary purpose, if, in his opinion, that is likely to benefit the patient. A patient hospitalized by a court order shall not be so discharged, except with the approval of a psychiatric board. Notwithstanding, the director who has made a tentative discharge may demand re-hospitalization of the patient at any time.

The Attorney-General or his representative, the patient or his relative or guardian may appeal to a District Court against the decision of a psychiatric board.

When a patient, in the opinion of the district psychiatrist, is incapable of looking after his own affairs, and has no natural guardian, the Administrator or General shall take charge of his property and conduct his affairs until a guardian of his property is appointed.

Any information as to patients, obtained in the context of the law is to be treated as confidential, unless a court directs otherwise. A physician may, however, advise the family of a patient and his friends of his condition.

Any person who knowingly causes the hospitalization of another person under the law unnecessarily or unlawfully is liable to imprisonment.

12. *Commodities and Services (Control) Law, 1957*

This law empowers every Minister to whom the Government has transferred the power to implement it to make orders directing and regulating production, preservation, storage, transportation and consumption of commodities defined as essential. He may also prescribe maximum prices for them and for essential services with a view to preventing excessive profits. Inspectors appointed for that purpose may enter premises and carry out searches therein; they have power to demand information, documents and samples of the commodities to which the law applies.

The Ministers of Commerce and Industry and of Health have made orders as to standards of milk, transportation of bread, ground poultry-fodder, marketing of milk products, hormonizing and nourishment of poultry, production and marketing of ice-cream and the prohibition of the production and marketing of adulterated foods.

13. *Local Authorities (Sewerage) Law, 1962*

The maintenance of the drainage and sewerage system was entrusted by the Mandatory legislation to local authorities, which were empowered to take steps to prevent any sanitary nuisance originating from sewage.

Under the new Law, a local authority may, and upon the demand of the Minister of Health, must instal a sewerage system within its area. It may, with the approval of the Minister of the Interior, install a sewerage system outside its area, so far as is necessary to remove sewage from the area, or otherwise dispose of it. It shall maintain its sewerage system in proper condition to the satisfaction of the health authority.

The installation, alteration, blocking-up or demolition of a sewerage system shall be carried out in such a manner as not to cause any public nuisance or danger to public health and in accordance with the directions of the health authority.

Any scheme for the installation of a sewerage system shall require the approval of the District Building and Town Planning Commission and of the Minister of Health or his representative. Schemes to construct plants for the purification of effluent or its removal shall require, in addition, the approval of the Minister of Agriculture or his representative.

The local authority may sell its effluent, provided that it is ensured, to the satisfaction of the health authority, that it will not become a public nuisance.

Should it appear necessary to the local authority, for reasons connected with the proper discharge of waste water from any property or the avoidance of a sanitary nuisance, or so as to prevent damage to a sewerage system or ensure its proper functioning, it may demand of the owner of any property within its area that he carry out, to the satisfaction of the health authority, the installation of a private sewer for the said property, its connection to a public sewer or its alteration or repair.

Where an owner fails to comply with the demand of the local authority, the work may be carried out by the authority and the costs recovered from him.

The Minister of the Interior is charged with the implementation of the law and may, after consultation with the Minister of Health, make regulations as to any relevant matter.

14. *Abatement of Nuisances Law, 1961*

The aim is to minimize the creation of public and private nuisances, noise, smell and pollution of air in particular. No person shall cause any considerable or unreasonable noise, if it disturbs or is likely to disturb any person in the vicinity or a passer-by. No person shall cause any considerable or unreasonable smell if it disturbs or is likely to disturb any person in the vicinity or a passer-by. Likewise, no person shall cause any considerable or unreasonable pollution of the air by smoke, gases, fumes, dust or the like, if it disturbs or is likely to disturb a person in the vicinity or a passer-by.

The Ministers of Health and the Interior shall make rules accordingly. The two Ministers may, by regulation, prescribe exemption from all or any of the provisions of the Law where they consider it necessary to do so to protect a public right which takes precedence over the right affected.

On the whole, the Law is of criminal nature in its essence, yet differs from other criminal statutes in that the right of action is vested in any individual without his being dependent upon prior police approval.

Contraventions are *eo ipso* considered civil wrongs, enabling the aggrieved party to claim damages and apply for a writ of injunction.

15. *Medical Practitioners (Approval of Title of Specialist) Regulations, 1964*

The object is to set up the conditions under which medical practitioners who have specialized for prescribed periods in certain branches may acquire a right to use the title of specialist. The branches are internal medicine, cardiology, haematology, allergology, lung diseases, gastro-enterology, endocrino-

logy, children's diseases, neurology, psychiatry and the combination of neurology and psychiatry, general surgery, neurosurgery, thoracic surgery, orthopaedic surgery, plastic and maxillo-facial surgery, urology, skin and venereal diseases, nose, ear and throat diseases, eye diseases, anaesthesiology, obstetrics and gynaecology, radiology, diagnostic radiology, therapeutic radiology, general medicine, public health, physical therapy and rehabilitation, clinical microbiology, clinical chemistry, and pathological anatomy.

Application for approval of the title must be filed with the Director of Medical Services, accompanied by certificates attesting that the applicant possesses specialized training in the branch or branches in which the title is sought for a period specified in the Schedule to the Regulations, and for at least six months in a basic science, i.e., anatomy, pathological anatomy, anthropology, epidemiology, biology, biochemistry, biophysics, genetics, chemistry, physical chemistry, microbiology, clinical research, sociology, statistics, physics, physiology, psychology, pharmacology, history of medicine and nutrition. If the applicant wishes to get the title in one of the basic medical subjects, the period of six months specialization must be done in a basic subject other than the one in which he desires to be recognized.

The holder of a baccalaureat in a basic science or a person applying for approval of the title 'specialist in public health', 'specialist in clinical microbiology' or 'specialist in clinical chemistry' need not have specialized training in a basic science.

The prescribed course of specialization has to be performed under the following conditions:

- (a) On a full-time basis in a recognized institution;
- (b) Under the supervision and guidance of a medical practitioner holding the title of specialist. If the supervisor is not a permanent resident of Israel, the requirement that he hold the title is waived, provided that he has been duly authorized to act as supervisor by the Scientific Council of the Israel Medical Association. Supervision in subjects other than medico-clinical may be exercised by any person who holds an academic teaching assignment or a Master's degree of at least six years' standing.

The Director of Medical Services may approve the title of specialist of a medical practitioner who has immigrated into Israel and previously held the title abroad. The Director may also approve specialization performed abroad, provided that it was performed in a recognized institution and that the application for approval was filed within two years of the entry into force of the Regulations.

All applications are referred by the Director-General of the Ministry to the Scientific Council of the Israel Medical Association for advice and recommenda-

tion. He may return any application to the Council, if he is dissatisfied with its recommendation, and ask for its revision. If he is still dissatisfied with the Council's revised recommendation, he must submit the application to a committee of three, one representing himself, and the other two being the Chairman of the Council and the Dean of the Faculty of Medicine of the Hebrew University. The Council and the committee may consult professional committees.

The Director may take no decision concerning the grant of the title of specialist without previously considering the recommendation of the Council or the committee, as the case may be.

The Director may withdraw, permanently or temporarily, any title given if he is satisfied that it was obtained by false pretences or if the holder has been grossly negligent in carrying out his duties as such specialist. The holder must, however, be given a fair opportunity to present his case to a committee of three members, one representing the Director, the other two being the Chairman of the Council and the Dean of the Faculty of Medicine.

No person shall use any title which is likely to mislead the public as to his qualifications as a specialist.

16. *Commodities and Services Control Order (Medical Preparations), 1964*

This Order was made by the Minister of Health by virtue of his powers under the Commodities and Services Control Law. It provides that the Director-General of the Ministry or a person authorized by him shall keep a Register of Medical Preparations. Any application for entry of a preparation in the Register shall be by the pharmacist responsible for its manufacture, or by the importer, through the District Pharmacist. No preparation shall be entered unless the applicant has furnished the Director a certificate testifying that it has been subjected to a quality test and found to correspond to the composition recorded in the application.

No person shall manufacture or import a preparation, unless it has been entered in the Register.

The Director may, at any time, cancel the registration of any preparation which appears to him to be injurious to health or likely to become so, or is not suitable for its declared purpose.

No person shall market a preparation unless it forms part of a batch subjected to quality test in the prescribed manner and the quality certificate states that its composition corresponds to the specifications in the Register.

Biological or antibiotic preparations shall be tested solely in the Institute for the Standardization and Control of Drugs.

The provisions of the Order do not apply to preparations despatched to or received from abroad, provided they are in reasonable quantities and designated

for personal use or medical or other research and approved by the Director. The same exemption applies to a preparation specially compounded in a pharmacy according to a prescription issued by a medical practitioner for the use of a specific patient.

17. *Public Health (Preservatives in Food) Regulations, 1965*

These Regulations provide for the kind and quantity of chemical preservatives that may be added to food. Their enactment became necessary in the light of new toxicological data regarding chemical food preservatives and recent advances in food-industrial technology. The Regulations provide for the use of substances which are desirable from both the public health and the industrial aspects.

The Regulations prohibit the manufacture for sale, and the import and sale as such, of any food containing a preservative, unless it meets the requirements set out in the Schedule.

An authorized officer may enter any premises where food to which the Regulations apply is manufactured, prepared, stored, packed or sold, and take samples of preservatives or labels intended for the marking of such food.

No person shall sell any substance as a preservative unless it meets the three following requirements:

- (a) it is a preservative or an alternative preservative;
- (b) its package is marked with a label indicating clearly the percentage of the preservative contained;
- (c) it conforms to the test and purity requirements.

No person shall sell any preserved food unless its package is marked with a label indicating that it contains a preservative. Restaurants and similar establishments where food is served for consumption on the premises are exempt from this provision.

No person shall advertise that a particular preservative is fit for use in any food, unless it is a preservative or alternative preservative specified in the Schedule or is permitted for use in quantities exceeding the proportion stated.

Where the Director of the Institute for the Standardization and Control of Pharmaceutical Products, or a person authorized on his behalf, certifies that any food has been prepared or manufactured in contravention of the provisions of the Regulations, the food shall be considered unfit for human consumption.

NATIONAL HEALTH EXPENDITURE

The problem of financing health services can be approached from the point of view of the Government budget and the share of health in it, or from the point of view of the total national expenditure on health care and medical services. The two approaches are not mutually exclusive; on the contrary, they supplement each other.

In the financial year 1964/65, the regular budget of the Ministry of Health was IL 107 million, more than 17% above the previous year. The share of the Ministry of Health in the general Government budget is seen in Table 1.

TABLE 1
REGULAR EXPENDITURE OF MINISTRY OF HEALTH AND
ITS RELATION TO TOTAL GOVERNMENT'S EXPENDITURE

Financial Year	Total regular Government budgets (millions) IL	Budget of the Ministry of Health (millions) IL	Increase over preceding year %	Health budget as per cent of total
1949/50	59.0	3.2	—	5.54
1950/51	88.7	4.2	29.1	4.75
1951/52	135.5	6.2	47.5	4.59
1952/53	186.8	10.3	64.8	5.49
1953/54	229.0	14.4	40.0	6.27
1954/55	332.7	17.7	23.0	5.31
1955/56	430.5	22.6	27.8	5.24
1956/57	502.4	29.3	29.9	5.83
1957/58	713.1	32.0	9.3	4.49
1958/59	764.9	39.4	23.6	5.15
1959/60	901.4	49.4	25.4	5.48
1960/61	1,048.4	55.7	12.8	5.31
1961/62	1,235.6	65.3	17.2	5.28
1962/63	1,397.9	81.9	25.4	5.86
1963/64	1,705.9	90.6	10.9	5.31
1964/65	2,302.8	106.7	17.8	4.63
1965/66	2,665.0*	119.0*	11.5	4.47
1966/67	3,274.0*	151.0*	26.9	4.61

*) Budgetary estimates

Source: Statistical Abstract of Israel, 1966, No. 17 and previous years.

The share of the Ministry in the total Government expenditure during the fifteen years is between 4.5 and 5.5 per cent. Only on three occasions (1953/54, 1956/57 and 1962/63) was the percentage noticeably higher.

The Government health budget is increasing to a very marked extent every year. Several periods can be distinguished in this respect. During the first five years of statehood (1949/50 - 1953/54), the budget of the Ministry went up by leaps and bounds. This was the period of mass-immigration, when the population doubled within a short period, and the Government expenditure on health multiplied fourfold in five years. The next period — 1954/55 to 1959/60 — was one of a more balanced rise, each year about a quarter over the preceding one. The exception was 1957/58, the only year when the increment dropped below 10 per cent. During the following five years — 1960/61 to 1964/65 — the annual addition to the expenditure of the Ministry was limited to about 15 per cent per year.

In this period, 1962/63 is outstanding. In that year the budget of the Ministry rose by more than 25 per cent over the preceding one.

The figures in the Table apply only to the regular budget. Changes also occurred in the development budget. For years, the Ministry was allotted only very modest sums for its building programme and for the erection of hospitalization facilities. In 1964/65, there was a change: a long-range plan to put up several hospitals in different places was launched and is now in progress.

For 1965/66, about IL 14 million was provided for construction, including new buildings as well as basic structural alterations in old ones to adjust them to changing service requirements.

The expanding budget of the Ministry may be compared with other economic indices: private consumption expenditure; general Government consumption expenditure; and consumer's price index, for instance.

The ratio of increase between 1950 and 1962 was 12.8 for private consumption expenditure, 14.7 for general Government consumption expenditure, and 3.9 for the consumer's price index, whereas for the Ministry's budget it was as high as 17.5.

TABLE 2
INCREASE IN SELECTED ECONOMIC INDICES AND IN THE REGULAR
BUDGET OF THE MINISTRY OF HEALTH, 1955-1963

Year	Private consumption expenditures	General Government consumption expenditures	Consumer's price index	Regular budget of the Ministry of Health
1955	100	100	100	100
1956	119	157	106	130
1957	137	145	113	142
1958	156	157	117	174
1959	175	175	119	219
1960	195	194	121	246
1961	231	241	130	289
1962	279	323	142	362
1963	333	366	151	400
1964	386	410	159	472
1965	453	511	171	..

Source: Statistical Abstract of Israel, 1966, No. 17.

The budget of the Ministry is but a fraction of the total national outlay for health. There are different approaches to the evaluation of that total, for there is no general agreement on the definition and scope of the services. It is, therefore, difficult and 'dangerous' to make international comparisons.

It is possible, however, to present a chronological comparison prepared by the Treasury and included in the Parliamentary Papers tabled in the Knesset in the context of the Estimates.

TABLE 3
NATIONAL EXPENDITURE ON HEALTH (*Millions IL*)

	1958/59	1959/60	1960/61	1961/62	1962/63
Central Government	45.2	53.8	61.9	72.3	91.0
Local authorities*	25.2	28.3	31.5	40.1	48.8
Voluntary non-profit agencies	120.8	136.6	151.3	178.1	212.1
Private services	46.2	51.8	59.3	68.2	81.8
Total, gross expenditure	237.4	270.5	304.0	358.7	433.7
Less: double counting	30.2	37.9	44.3	50.5	63.4
Total, net expenditure	207.2	232.6	259.7	308.2	370.3

* Including environmental sanitation.

According to the same source, the total expenditure in 1964/65 was about IL 500 millions.

In five years, then, net current expenditure almost doubled. The Government share in the total rose from 21.8 to 24.6 per cent and that of the public sector, excluding private services, from 28.1 to 31.5 per cent.

This series of annual estimates of national expenditure on health was discontinued recently, but another estimate for three years was prepared by the Central Bureau of Statistics. It differs in some assumptions and definitions from the previous one, and the two series are, therefore, not comparable, as they originate from different sources. In this 3-year estimate (as presented in Table 3A) the expenditure is broken up by categories of services and not by source of financing.

TABLE 3A
NATIONAL EXPENDITURE ON HEALTH (MILLIONS IL), BY SERVICES
1962/3-1964/5

	1962/3	1963/4	1964/5
Total national expenditure on health	340.6	390.7	464.5
Total current expenditure on health services	315.8	357.8	419.6
Administration, in the public sector	5.0	6.1	6.7
Ambulatory care and preventive medicine	122.4	139.3	164.3
Hospitals	121.0	133.0	156.8
Dental health	22.2	26.3	31.2
Private physicians	25.7	30.7	36.8
Drugs and medical appliances*	19.5	22.4	23.8
Total capital formation in fixed assets	24.8	32.9	44.9
Building and construction works	16.3	23.8	34.7
Machinery and equipment	8.5	9.1	10.2

* Outside medical institutions

Source: Statistical Abstract of Israel, 1966, No. 17

During a short period of two to three years, the total of health expenditure rose by 36.4 per cent. The greatest increments were in "Dental health" (40.5%) and "Private physicians" (43.2%). It should be mentioned that these two items are financed mainly by out-of-pocket payments on the part of the beneficiaries while receiving the service.

There is also a unique opportunity of drawing a limited international comparison. The World Health Organization sponsored a pilot study on the cost of health services in six countries, Israel included. The published results are

an interesting experiment in determining definitions and formulae for international comparison.*

The definitions and content of services in the study differ from those used by the Israel Treasury, and the two sets of figures are, therefore, not comparable. Expenditure on health services in Israel, according to the WHO survey, came to IL250.3 million during the budgetary year April 1959-March 1960, which is 5.3 per cent of the Gross National Expenditure (G.N.E.), or 7.86 per cent of the National Income. The comparable figures were 4.9% of G.N.E. for Sweden, 5.3% of G.N.E. and 6.4% of National Income for the USA and 4.3% and 4.94% respectively for Ceylon.

The sum included IL 25 million for capital expenditure. Only one-fifth of the current operating expenditure came from direct payments by the beneficiaries, while 79.4 per cent was indirect expenditure, including central and local government, health insurance and voluntary health agencies. This division between direct and indirect expenditure may be considered an indicator of the extent to which health services in Israel are 'organized', a degree of organization conspicuous for the fact that more than half of the indirect expenses came from *voluntary insurance* and other voluntary health agencies. This peculiar pattern in Israel is evident from the following Table taken from the WHO survey:

TABLE 4
SOURCES OF FINANCE AS PERCENTAGES OF TOTAL CURRENT OPERATING EXPENDITURE
ON HEALTH SERVICES IN SEVERAL SELECTED COUNTRIES

Country	Indirect, percentages			Direct percentages
	Government	Compulsory social insurance	All other*	
Ceylon	62.2	—	2.1	34.5
Czechoslovakia	79.7	6.5	3.6	10.2
Israel	36.3	3.0	40.1	20.6
Sweden	65.1	11.7	0.4	22.8
USA	22.5	1.8	18.7	57.0

* Includes voluntary insurance.

In Czechoslovakia and Sweden, which maintain organized medical care programmes, the contribution by Government is considerably higher than of 'all other' sources. In Israel, voluntary programmes constitute the main factor in the organization.

The per capita health expenditure expressed in dollars, as estimated in the WHO survey, was as follows:

* B. Abel Smith: Paying for Health Services. Public Health Papers No. 17, WHO, Geneva, 1963.

TABLE 5

EXPENDITURE ON HEALTH PER PERSON IN US DOLLARS
IN SEVERAL SELECTED COUNTRIES

	Ceylon (1957/58)	Czecho- slovakia (1958)	Sweden (1956)	USA (1957/58)	Israel (1959/60)
Capital (development)	0.3	5.6	5.4	4.8	5.6
Current (operating)	5.3	68.1	58.3	128.9	50.4
Thereof: indirect	3.5	62.1	45.0	62.1	40.0
direct	1.8	5.9	13.3	66.8	10.4

Direct expenditure on health made up only 1.6 per cent of the total private consumption expenditure in Israel, as against 1.7 in Sweden, 2.0 in Ceylon and 4.1 in the USA.

Over one-third of the total current operating expenditure (37.9%) was spent on in-patient care; over half (51.4%) on out-patient curative and preventive personal care; other kinds of personal care absorbed 5 per cent, while disbursements on environmental and other public health services constituted only 1.9 per cent; the remaining 3.9 per cent went on teaching and research.

Changes in health expenditure in Israel may be influenced by two additional factors: growth of the population and variations in the real value of the Israel pound. This was calculated by the Finance Department of the municipality of Tel Aviv-Yafo.¹⁾ The situation in this largest city of the country may be taken as indicative of the general situation.

TABLE 6

EXPENDITURE OF THE MUNICIPALITY OF TEL AVIV-YAFO
ON HEALTH, IN REAL POUNDS*

Budgetary Year	Expenditure in real pounds		Index numbers	
	Total **	Per person	Total	Per person
1951/52	1,033	2.87	100	100
1956/57	1,853	4.75	179	166
1957/58	1,992	5.04	193	176
1958/59	2,167	5.42	210	189
1959/60	2,353	5.81	228	202

* Current expenditure adjusted by the consumer's price index.

** Thousands of IL.

¹⁾ Financial Report for the Year 1959/60—Statistical Summaries, November 1960, p. 26 (in Hebrew)

The 'real' expenditure per person doubled in eight years. This may be ascribed to the expansion of services and of personnel, and to frequent revisions of salary scales for employees, which usually result in considerable—sometimes retroactive—raises. In the last four years in the Table, the expenditure per person each year exceeded the one before, as follows: in 1957/58 by 6.1 per cent, in 1958/59 by 7.3 per cent, and in 1959/60 by 7.2 per cent.

THE ABSORPTION OF IMMIGRANTS

From biblical days, and throughout the centuries, Jews have been drawn by spiritual and religious feelings towards Palestine. The Zionist Movement inspired thousands of Jews to go back to the Land, to cultivate the soil, establish industries and build towns and villages. This process was accelerated and intensified by Nazi persecution in Europe; by 1948, half a million Jews had already returned.

With the Proclamation of Independence, the gates of immigration were opened wide. The right of every Jew, whencesoever he may come, to settle in Israel was given statutory sanction in the Law of Return, passed in 1950. It stipulates ('oleh' means immigrant and 'aliyah' — immigration):

- "1. Every Jew has the right to come to this country as an 'oleh'.
2. (a) Aliyah shall be by oleh's visa.
(b) An oleh's visa shall be granted to every Jew who expresses his desire to settle in Israel, unless the Minister of the Interior is satisfied that the applicant:
 - (1) is acting against the Jewish people, or
 - (2) is likely to endanger public health or the security of the State, or
 - (3) is a person with a criminal record who is likely to endanger public welfare.
3. (a) A Jew who comes to Israel and subsequent to his arrival expresses the desire to settle in Israel is entitled, while in Israel, to receive an oleh's certificate.
(b) The restriction specified in Section 2(b) shall also apply to the grant of an oleh's certificate, but a person shall not be considered to be endangering public health on account of an illness contracted after his arrival in Israel."

By agreement between the Government and the Jewish Agency, representing the World Zionist Organization, in 1952, the functions of the Zionist Executive in the sphere of immigration were defined. The most important are: organizing immigration abroad, transferring immigrants to Israel, and ensuring

their initial absorption, including youth immigration and agricultural settlement. A Coordination Board was set up, with equal representation of Government and the Zionist Executive, to ensure full cooperation.

The immigration policy and ways of absorption were formulated by the Agency with the Ministries of Housing, Labour, Health, Social Welfare and Education and Culture, which were concerned with providing the necessary services.

First Phase of Immigration

From May 1948 to the end of 1951, about 685,000 immigrants arrived, more than doubling the Jewish population. The first influx was of survivors of concentration camps and the Nazi 'final solution' — about 75,000 in all — and immigrants from Oriental countries, where Jews looked on the establishment of the State as the realization of a long-cherished Messianic dream. They came from Morocco, Tunisia and Algeria, Iraq, Libya and Yemen — from the last three it was, in fact, almost a complete exodus.

In the short breathing space allowed by some East European Governments to Jews wishing to depart, immigrants came particularly from Czechoslovakia, Bulgaria and Yugoslavia; the possibilities of departure for Jews from Poland, Rumania and Hungary were much more limited and their immigration was soon halted. About half of the Jewish population of Turkey arrived by the end of 1950; at that time immigration from Persia started.

Housing needs were met through the reconditioning of abandoned towns and villages and a concentration of immigrants in Yafo, Lod and Ramla. The Jewish Agency also used former British barracks, most of them near the cities, supplemented by tents, tin and wooden huts, to give the newcomers a roof over their heads, with food and clothing besides. The Government set up schools in these camps, and women's organizations helped by opening crèches and kindergartens. But there was no privacy there for families and, by the end of 1949, about 100,000 people were living in them in enforced idleness and dependence, because there was no work in the towns, where the thousands of discharged soldiers had priority of right to even casual employment.

Ma'barot — transit housing encampments — were accordingly set up on the outskirts of urban and other areas of industrial development, where labour was needed. Each family was given separate accommodation, even if only in a tent or hut. This improvisation, intended for a short spell, has lasted for many years.

While, prior to 1948, immigrants were mainly young people, fired by a pioneer spirit, groups bound together ideologically and originating from the

same or similar cultural backgrounds, mass immigration brought large and broken families from totally different cultural origins. Immigrants from Eastern and Western Europe felt at a disadvantage under the hard conditions of Israel. Those from the Orient had great difficulties in adapting themselves to the predominantly European pattern of community life. Unaware of the emotional strain placed upon them, the authorities expected them to bridge centuries in months or even weeks.

Second Phase

Immigration slowed down in the second phase, beginning in 1952 and ending during 1954, partly because of the closure of frontiers by certain countries and partly because of the arduous conditions in the camps and in ma'barot, which in 1952 had nearly 250,000 inmates. Jews living in bearable conditions, as in North Africa or in the affluent West, were hesitant to come.

This pause gave the Government a chance to see to the two basic problems requiring urgent solution: housing and work. The Housing Division of the Ministry of Labour, now the Ministry of Housing, made every imaginable effort to speed up the construction of permanent dwellings. It met with great difficulties: building material was lacking, experienced workers were scarce and funds inadequate. Thus, the earlier projects and parts of the new towns built at this time did not come up to standard: the flats contained, on the average, only 1.6 rooms, with an area of from 26 to 34 square metres.

Gradually, the economic situation improved. There was considerable growth in industry: in 1953, the Reparations Agreement with Germany went into effect and led to an increase in means of production; people were encouraged to move to permanent housing. Thus began, in August 1954, the third phase of immigration, routing immigrants directly from port to settlement.

Third Phase

Experience had shown how hard it is to persuade an urbanized family from abroad, even after having to live in a tent near a town, to move into a development area, where permanent housing and work — mainly on building — were ensured. For many reasons, it was undesirable to increase the population density in the coastal plain and permit large areas elsewhere to remain underpopulated and undeveloped.

With conditions in North Africa changed, immigration could be resumed thence. To forestall failure, the Coordination Board decided to encourage only the immigration of people fit for physical work, both medically and socially. The plan succeeded; thousands of carefully selected families arrived, and were

directed to the development areas. Here each found a livelihood, even if, in the beginning, the new towns lacked industry, secondary schools and cultural institutions. The channelling of the influx almost exclusively to development areas, combined with extended building programmes, rendered it feasible not only to avoid expansion of the ma'barot, but to move more and more people to permanent housing.

Fourth Phase

Improvement in economic and housing conditions, and the progress of the new towns in the development areas, provided facilities for the fourth phase, starting in 1957 with the unforeseen immigration from Hungary, Egypt and Poland. Most of these immigrants were skilled, with a high percentage of the professionals desperately needed in the new towns. Their coming made it possible and urgent to put up factories, open secondary schools, foster cultural interests. Among those from Poland were many candidates for kibbutzim. A unit for absorption in kibbutzim was established in 1957. Meanwhile, there was a small but steady trickle of immigrants from the West consisting, in part, of members of youth movements who went straight to the kibbutzim ideologically connected with their overseas organizations.

All through this 'crash' immigration, of which a part necessarily made its way to the towns, even the most feverish pace of construction could not satisfy all needs; people were housed in unfinished flats, and the Jewish Agency introduced a new and improved version of temporary building, the 'asbeston', or house of prefabricated asbestos panels, which provided tolerable, if not long-lived, accommodation.

Fifth Phase

After a slowdown in 1958-1960, the fifth phase opened in 1961 with a constant and substantial immigration from different countries. Immigrants from Western countries, if not influenced by difficult conditions abroad, were attracted by a rising standard of living here. Immigration from Western Europe, North America and Latin American grew year by year. There was also immigration from North Africa, especially from villages where small communities lived most hazardously, bringing many impoverished families with only a single or no bread-winner and with many children. And there was immigration from Eastern Europe, mainly of small families in higher age groups (40-50) and elderly people — couples and single persons with a relatively high percentage of chronically ill.

Services for Immigrants

The basic services given to immigrants by the Absorption Department of the Jewish Agency, to some extent jointly with governmental bodies, are these:

1. *Initial assistance* given to each immigrant upon arrival:

- (a) Pocket money;
- (b) Food parcels;
- (c) Personal equipment, such as beds, mattresses and blankets;
- (d) Household equipment, including furniture, kitchen utensils and other effects;
- (e) Transportation of immigrants from ship or airport to their place of residence;
- (f) Health insurance — for the first three months in Israel;
- (g) For each family in need a grant or loan, as initial assistance.

2. *Housing*

Housing is allocated to all immigrants. It is financed by the Ministry of Housing and the Jewish Agency, built by the Ministry and by companies subsidized by it, and administered by the non-profit Amidar national housing company, owned jointly by the Government and the Agency. The flats in the development areas are rented; in urban areas, flats are allocated in 'asbestons' (see above) and in permanent housing, either on rental terms, or, for people transferring from 'asbestons', on easy terms of purchase.

The average size of a flat in 1950 was from 26 to 34 square metres; in 1964, 50% of flats were 48 square metres in area, 30% were 54, and 20% were 60 or more.

For professionals it was practicable and needful to plan housing where suitable work was available. Where jobs for the skilled could be guaranteed in most instances housing was waiting, but often employment could only be assured after the immigrants had acquired a working knowledge of Hebrew. To bridge this gap, hostels went up in all parts of Israel, where the family rented a little apartment for about six months. Today 4,000 persons occupy these hostels and, during the eight years of their existence, about 18,000 persons have passed through them.

With the help of Malben, in an attempt to solve the problem of the many elderly single persons in the ma'barot, the Ministry of Housing erected about 600 small flats. The Jewish Agency had previously embarked on a scheme of

residential homes for those elderly people who can take care of most of their own needs and enjoy community life, but need sheltered conditions, care of a house-mother and temporary or part-time help. There are now 368 occupants of 8 small homes with 315 one-room apartments with kitchenette and shower-toilet.

Provision of social services, combined with grants to aged immigrants to help them to pay key-money to rent a room or an apartment, is another way of succouring those who prefer, and are able, to live alone.

ABSORPTION OF IMMIGRANTS, 15 MAY 1948 - 31 DECEMBER 1963

Type of Absorption	Persons	Percent
Total Number of Immigrants	1,158,541	100
<i>Total number accommodated in permanent housing in urban settlements</i>	907,511	78.3
Housing built since the establishment of the State	566,424	48.9
Abandoned housing in cities	123,763	10.7
Relatives and personal arrangements	206,551	17.8
Asbestos houses in urban areas	10,773	0.9
<i>Total number accommodated in provisional and temporary housing</i>	28,582	2.5
Ma'barot and other camps	12,752	1.1
Provisional asbestos housing	15,830	1.4
<i>Total number placed in agricultural settlements</i>	180,243	15.5
Cooperative villages (moshavim)	105,908	9.1
Kibbutzim	47,288	4.1
Youth Aliyah	27,047	2.3
<i>Total number placed in institutions</i>	6,795	0.6
Provisional social welfare institutions	373	
Permanent institutions for social welfare cases (Malben)	6,422	0.6
<i>Miscellaneous and unknown</i>	35,410	3.1

3. First Steps in Development Towns

Where immigrants come directly from port to a development town, Agency personnel meet them and help them to find their way to the labour exchange, the school and kindergarten, in their immediate financial needs and in the planning of their future.

Unskilled immigrants are trained to become self-supporting workers. The handicapped are employed part-time in afforestation and road-building. Elderly people get lighter work, also part-time.

4. *Education*

The Absorption Department, with Youth Aliyah and governmental bodies, established youth centres in the development towns. Half a day there is devoted to school lessons and the rest to vocational training.

To enable children above the age of ten to do their homework in proper conditions and not in the cramped living conditions of many homes, 85 youth clubs were established.

A Joint Fund administered by the Jewish Agency awards stipends to thousands of youngsters — candidates for secondary school and university study.

5. *Ulpanim*

The highlight of adult education, the teaching of Hebrew in the shortest possible time, are the Ulpanim, Hebrew language courses for adults. The first started in 1949. The Jewish Agency is responsible for the maintenance of the Ulpanim and the admission of students. In most cases it helps them to pay their fees and in many cases to support their families, mainly by long-term loans. The Ministry of Education and Culture is responsible for teaching and pedagogical supervision.

There are three types of Ulpanim: non-residential, with courses for six days a week, four or five hours a day; residential, with boarding facilities (30 hours a week). These two types are intended only for professional people. The third type, the kibbutz-Ulpan, is based on half a day of study and half a day of work, open to all younger immigrants between the ages of 18 and 40 who have at least an elementary school education. About 75,000 immigrants have passed through the Ulpanim.

6. *Social Welfare*

One of the most weighty problems has been provision of care for people in need: the elderly, the disabled, the children who had been deprived of normal opportunities for growth and development. From the concentration camps came broken families — handicapped, partly damaged in body and mind. The 'Magic Carpet' brought hundreds of infants from Yemen, many in such a state of undernourishment that they could not be saved.

The sudden immigration of many families from Egypt in 1957 changed their living conditions drastically overnight. Thanks to the immigrants' strong personalities and cultural and religious upbringing, and the diligent help of old-timers, they were able to integrate quickly and find suitable work.

The Polish immigration brought many families with a background of mixed marriages with children who did not know that they were Jewish; these families were exposed to a grave mental strain and some could not endure it.

The exodus in 1962/63 from villages in underdeveloped countries not within reach of medical services brought to Israel many blind, deaf and mute persons who were both illiterate and of limited rehabilitation potential.

In the first stage of immigration, the Absorption Department had to face most social problems unaided by existing social services: in the camps, special arrangements were made with the help of women's organizations to improve conditions. Nurseries were established and mothers were assisted to care for their children. Handicapped immigrants were offered opportunities for economic rehabilitation through reserving for them, in the early years, all the shops locally available.

After the first years, with the development of Government social welfare services, the Jewish Agency was responsible for planning only the integration of immigrants known to be socially handicapped, before their actual immigration and for extending initial assistance to newcomers.

Current Problems of Absorption

In 1948, Western culture was dominant in Israel. When old-timers, mostly of that origin, had already attained a relatively high standard of living, newcomers from Islamic countries experienced severe hardship in sudden conditions of mass immigration. Most housing projects were on the outskirts of cities, or in new towns. This meant a physical severance and a widening gap between the two 'civilizations'.

In the beginning, many errors were made by hastening processes that were thought inevitable: splitting up of families and loosening family bonds. Now the family unit is seen as the key to integration and adjustment.

The Ministry of Housing plans combined housing projects for newcomers, oldtimers and young couples, so as to find a common 'structural' basis: help and nurseries for mothers, school for the children, cultural institutions for leisure time.

Amidar and the Ministry of Social Welfare have started a community organization programme, but the needed large staffs of highly skilled workers who understand the importance of preserving religious and cultural traditions, of forging the links between backgrounds within a pattern of national culture, are not available in sufficient numbers.

Every newcomer, even if with financial means, undergoes a crisis generated by the ordeals of surrendering a position, a home, kinsfolk, to settle in a new country and to face the vast difference between the fulfilment of his hopes and the actuality.

The newcomer, it is true, gets the essential elements of livelihood — a home with basic furniture and a job. But he is restricted in his eligibility for two cardinal types of benefits: his Sick Fund insurance does not always cover hospitalization, nursing or custodial care, if he is chronically ill; his social insurance does not always make him eligible for old-age pension. Only complete health insurance for the whole population and rescindment of the present exclusion from old-age pension of people who came after 1953 and are over 59 years old will redress these faults. Thousands of families depend on the Ministry of Social Welfare for the financing of their medical care; they were entitled to it abroad and had not to be dependent there on official 'charity'.

Israel, after all, is an immigrant-country *par excellence*. It is hoped to adapt the conditions of absorption to changing circumstances, stressing fuller planning and social security, adding depth and feeling to the individual care and understanding for the social integration of the immigrant into Israel. So the Ingathering of the Exiles will go on.

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One of the most remarkable features of the nutrition situation in Israel is the large increase in food production since the establishment of the State. Table 1 presents figures on the production of 14 major foods and food groups in 1949/50 and in 1961/62.

TABLE 1
FOOD PRODUCTION IN ISRAEL IN 1949/50 AND IN 1961/62 (METRIC TONS)

	1949/50	1961/62	Increase per capita, %
Population	1,216,000	2,264,000	
Wheat	27,000	51,700	68
Potatoes	35,300	111,000	68
Sugar	—	27,156	
Oils and fats	22,960	59,255	39
Pulses, nuts, oil seeds	3,500	12,200	87
Citrus fruits	270,000	582,000	6
Watermelons and melons	44,700	86,800	4
Other fruits	32,850	216,400	254
Vegetables	127,000	285,900	21
Beef	760	11,830	829
Poultry	6,850	61,750	385
Eggs	18,150	71,638	113
Fish	6,150	16,200	42
Milk (incl. sour milk)	121,800	386,641	70

Production of all food groups rose considerably in that period; indeed, it even rose per capita in spite of a population increment of 86% in the 12 years. The production of animal foods in particular was much higher. Published figures of the Food and Agriculture Organization show that the food production index of Israel went up from 100 during the period 1952/53-1956/7 to 148 in 1958/59 and to 179 in 1961/62. The corresponding figures of per capita food production are 100, 127 and 140. These statistics put Israel in a prominent place on the list of countries which have stepped up their per capita food production in that period.

* Editor's Note: This review was written in spring 1964.

TABLE 2
NUTRITION AVAILABLE FOR CONSUMPTION
PER CAPITA

	1949/50	1961/62	Increase, %
Calories	2,610	2,852	9
Total protein, gm.	83.9	87.3	4
Animal protein, gm.	32.2	36.5	13
Carbohydrates, gm.	402.3	417.1	4
Fat, gm.	73.9	92.7	26
Fat, per cent of calories	25.5	29.3	4

At the same time, there was a larger amount of nutrients available (Table 2). Calories rose by 9 per cent. Total protein and carbohydrates rose only by 4%, but there was more of animal protein by 13% and of fat by 26 per cent. Thus, the proportion of fat-calories rose by 3.8 per cent. These figures, indicating greater consumption of calories, particularly of animal protein and of fat, are characteristic of the present food consumption pattern in highly developed countries and in societies which enjoy an abundant food supply.

The resultant changes in the nutritive value of the average menu are due to marked shifts in the consumption of certain foods in recent years (Table 3).

TABLE 3
CONSUMPTION OF SELECTED FOOD GROUPS, KG PER CAPITA PER YEAR

	1949/50	1961/62	Consumption in 1961/62 as percentage of 1949/50
Fish	17.4	10.3	59
Potatoes	45.2	32.5	72
Beef	11.1	9.3	84
Wheat	117.7	111.5	95
Milk (incl. sour milk)	88.4	84.7	96
Fruits and vegetables (excl. potatoes)	219.0	255.5	116
Oils and fats	15.5	19.4	125
Eggs	14.6	19.9	136
Sugar	17.2	32.1	187
Poultry	5.9	27.0	468

During the period under review, there was a considerable decline in consumption of fish and potatoes, a smaller decline in that of beef, wheat and milk, and a rise in consumption of fruits and vegetables, oils and fats, eggs, sugar and poultry. Consumption of poultry went up by nearly 500 per cent. These changes are probably the end-product of economic factors and of an altered demography involving altered food habits.

It is difficult to define the specific role played by each cause in the change of the food composition pattern, but there are indications that both of them affect consumption of certain food groups. Poultry-raising, for instance, has become cheaper in the last few years, meaning lower prices for eggs and poultry. This may have contributed to the large rise in their consumption. On the other hand, a study conducted among Yemenite Jews has shown that they used less oil and sugar in Yemen than they now do in Israel, and that their consumption of vegetable fats and of sugar rose with the length of their residence in Israel. Similarly, Jews from Cochin were found to eat less beef and much more rice and fish than comparable groups of the rest of the population.

Much information on food consumption has been gathered by surveys of different groups.

1. In a survey comprising 6,000 Jewish families of urban wage and salary earners in 1956/57, it was found that the economically highest group consumed 280% more milk and milk products than the lowest, 250% more fruits, 220% more eggs, 110% more fish, 50% more vegetables and potatoes, and similar quantities of oil, fats and sugar, but 50% less pulses and 40% less bread and other cereals.

2. The same survey, as well as another that sampled the Jewish rural population in 1959/60, showed that families from Asia and North Africa consumed more cereals and pulses and less milk, eggs, fish and beef than Jews from Europe and North America.

3. In a dietary study of 148 pregnant women in different quarters of Jerusalem (1962), it was found that women living in well-to-do suburbs and belonging to a higher social class consumed less cereals, pulses and poultry and more fruits and vegetables, beef, eggs and milk and milk products than women living in poorer ones. But the two groups differed not only in social class but also in respect to birthplace: 80% in the higher social class were born in Israel or Europe and 20% in Asia (excluding Israel) and North Africa, as against 23% and 77% in the lower one. It is, therefore, possible that the above-mentioned differences in the food consumption pattern among Jews from different countries are related to the social class rather than to birth-place.

Average consumption of nutrients appears to be satisfactory. The following mean daily intake of nutrients per consumption unit has been found in the two country-wide surveys cited above (Table 4):

TABLE 4
MEAN DAILY INTAKE OF NUTRIENTS BY CONSUMPTION UNITS

Nutrient	Jewish urban population	Jewish rural population
Calories	3,090	3,900
Total protein, gm.	89.7	104.0
Animal protein, gm.	38.2	45.6
Calcium, mg.	736	802
Iron, mg.	13.4	17.2
Vitamin A, I.U.	5,540	7,610
Thiamin, mg.	1.79	2.18
Riboflavin, mg.	1.80	2.36
Nicotinic acid, mg.	17.2	19.2
Ascorbic acid, mg.	108	158

The intake of all nutrients, except of calcium, by the urban population exceeds that recommended by the National Research Council of the United States. A considerable percentage of families, however, particularly in the low-income brackets, consumed less than 80% of the recommended allowances of animal protein, calcium, vitamin A and riboflavin.

Special attention has been given to the nutrition of pregnant women. A summary of four studies is presented in Table 5.

TABLE 5
INTAKE OF NUTRIENTS BY PREGNANT WOMEN

No. of subjects studied	100	370	81	45
Place of enquiry	Negev	Jerusalem	Jerusalem	Jerusalem
Year of enquiry	1957/58	1958/59	1962	1962
Predominant social classes	Low	Low	Low	High
Calories	2,502	2,051	2,015	2,040
Total protein, gm.	69.5	72.3	69.2	72.6
Animal protein, gm.	22.3		31.1	43.5
Calcium, mg.	775	830	716	954
Iron, mg.	10.6		11.0	12.4
Vitamin A, I.U.	3,229		3,676	5,570
Thiamin, mg.	1.22		1.04	1.19
Riboflavin, mg.	1.31	1.45	1.35	1.79
Nicotinic acid, mg.	11.2		11.1	10.3
Ascorbic acid, mg.	61		78	106

The average diet eaten by women belonging to lower social classes fell below the recommended allowances in respect to most nutrients. In the higher social classes, the diet provided more animal protein, calcium, iron, vitamin A, riboflavin and ascorbic acid.

Information on the nutritional status of the population is more scanty than on its food consumption, and most of it stems from occasional clinical observations. Although clear signs of nutritional deficiency are encountered, its prevalence in the population is unknown.

Very few surveys have been done on the nutritional health of representative groups. In one study, 164 pregnant women belonging to low-income groups and living in a development area were examined. Only one single clinical case of vitamin A deficiency and one other suggesting ariboflavinosis were found.

Occasionally, cases have been observed of calorie-protein deficiency in infancy (marasmus, kwashiorkor). As in other countries, the etiology of this disease is closely linked with social factors, such as low family income, inferior sanitation promoting intestinal infections, ignorance concerning infant feeding, negligence or early weaning (because the mother becomes pregnant again or is compelled to go out to work). Very few cases of scurvy have been noted: they occurred in infants fed over long periods on a formula diet without fruit juices added. Beri-beri and pellagra are non-existent in Israel. Ariboflavinosis and vitamin A deficiency are rare, in contrast to rickets, which has been reported even in the sunny clime of the Negev. 2,105 infants aged 3-24 months were examined in 1958-1960 in a child health centre in Be'er Sheva: 96 showed evidence of clinical rickets as manifested by craniotables and costo-chondral beading; 66 of them gave radiological evidence of rickets, and in 11 cases the changes were classed as severe. Osteomalacia has been encountered among Bedouin women in the Negev.

An endemic goitre region has been located in Upper Galilee: goitre was seen in 248 — 11% — of 2,189 boys and girls (aged 8-18 years) examined. Urinary excretion of iodine was low and accompanied by a high uptake of radioactive iodine. The iodine content of the water supply of most villages was low.

Food Policy and Nutrition Services

The limited food production of Israel in the first years after the establishment of the State, and the rapid increase of the population, obliged the Government in 1949 to introduce strict food control. The methods followed the British precedent of World War II. The aims were to prevent waste of food, to restrict expenditure of foreign currency on food imports and to secure enough food

for everyone. Control insured the supply of an adequate ration to each individual according to his physiological needs. The rationing comprised almost all commodities, except bread, the principal and cheapest source of calories. For certain groups of the population — for instance children, pregnant and lactating women and those engaged in heavy physical work — supplementary rations were assigned, especially cheese, eggs and meat. Special rations were distributed to sick persons on medical certificates approved by the Medical Association. In the course of time, other privileged groups were added, such as old people, blood-donors and workers exposed to X-rays.

Restrictions in food supply are always accompanied by the danger of profiteering. Strict price control was, therefore, introduced, but, as in other countries, the Government was not able to prevent the emergence of a black market in food, despite rigid oversight of food sales by a large number of supervisors.

Rationing of food, as such, does not guarantee that everybody gets his share when prices are higher than the poor can afford to pay. The Government accordingly began to subsidize certain basic foodstuffs, such as bread, milk, eggs and fish.

During the austerity period, the basic ration offered a nutritionally adequate diet, although it was frequently below the standard to which well-to-do people of Western countries were accustomed. It was, however, markedly better than that of many immigrants from the Middle East. If, therefore, malnutrition was encountered in such groups, it was largely due to the poor diets consumed in the countries of origin.

In 1952, the Government changed its economic policy: the austerity regime was gradually liquidated, rationing of most foods was abolished and more food became available on the free market. Price control of many commodities was lifted, so that the price often rose, but progressive withdrawal of subsidies was a further cause of rising prices. The change led to a considerable deterioration of the nutritional situation of the economically worst-off sector of the population, but, with the general improvement of the economy of Israel, this sector has contracted perceptibly in recent years.

Nowadays, Government food policy and nutrition services may be viewed from two main aspects: activities affecting the level of nutrition of the entire population and those relating to certain groups.

1. Activities in the first sphere are these:

- a. Subsidies for eggs and milk, which help to keep their prices down; this is one of the reasons for the particular cheapness of eggs and their consequent high consumption (Table 3), even by low-income groups.

b. Enrichment of margarine and flour, officially controlled: the margarine is enriched with 3000 I.U. of vitamin A and 300 I.U. of vitamin D per 100 gm.; all flour milled is fortified with 20-30 gm. of defatted soybean flour, 2.5 gm. of calcium carbonate and 2.5 mg. of riboflavin per kg.

Riboflavin deficiency was widespread among the lower social classes before the establishment of the State. Over 20% of Jewish pregnant women in Jerusalem in the lower income groups showed definite signs of ariboflavinosis. In a study designed to evaluate the effect of flour-enrichment with riboflavin, over 400 pregnant women of low social classes were surveyed in Jerusalem. Clinically, no certain case of ariboflavinosis was detected. Riboflavin determinations of 773 urine samples showed a high excretion in 77% and low values in less than 1 per cent. Riboflavin added to flour provided one-third of the daily intake of this vitamin. It was concluded that flour-enrichment with riboflavin contributed substantially to the eradication of ariboflavinosis in pregnancy. Fortification of flour with riboflavin is of particular importance in the diets of low-income groups. Also in a recent study in Jerusalem, the diets of two groups of pregnant women were compared: one lived in a poor quarter and the other in an affluent neighbourhood. The diet of the women of the first group provided 1.39 mg. riboflavin per day, but would have provided only 0.92 mg., or 34% less, without flour enrichment. The corresponding figures for the second group were 1.79 and 1.45 mg. and 19 per cent respectively.

Enrichment with calcium augmented the calcium intake of four groups of pregnant women in Jerusalem in low-income strata by 214-223 mg. per day or by 22% - 39% of total intake.

The effect of the addition of soybean flour was likewise studied, in humans as well as in experimental animals. It was found that an addition of 50 gm. of soybean flour per kg. of wheat flour may improve the nutritional value of the combined proteins of the diets of low-income groups, whereas no effect was seen in diets of higher social classes. It is doubtful whether fortification with such a small amount as 20-30 gm/kg has any effect, even on nutritionally inferior diets.

2. Services rendered to certain groups of the population include:

a. Inexpensive school luncheons: 122,000 school children and 22,900 nursery children are embraced by this scheme. The average menu supplies approximately 700 calories and 34 gm. of protein, one half derived from animal sources.

b. Supply of cheap sterilized milk to needy persons (through the Ministry of Social Welfare). The price is approximately one-fifth of the market figure.

c. Mother-and-child health centres provide nutritional guidance to expectant and lactating mothers. Anaemic women are treated with iron prepa-

rations. Vitamins A and D are administered to all infants during the first year of life, and to toddlers, if necessary.

d. Sterilized milk at a subsidized price is made available to infants in rural areas where refrigeration facilities do not exist and pasteurized milk will not keep. Approximately 10,000 infants, or one-sixth of the whole infant population, benefit from this service.

e. A nutrition home-instruction service is at the disposal of mothers of undernourished children, by arrangement of the Ministry of Health in co-operation with the Ministry of Social Welfare.

f. Cooking and nutrition are taught in 240 primary schools. 45,000 children in grades 6, 7 and 8 get lessons in cooking and 30,000 pupils in grades 7 and 8 get lessons in nutrition. Lessons in cooking involve the preparation of meals, which are then eaten by the children themselves. The teaching of nutrition has been shown to be important in introducing new dishes and improving the family menu.

Some Nutritional Problems

Whereas the classical nutritional diseases which result from nutritional deficiency are rare in Israel except rickets, other disorders involving faulty nutrition present problems of public health. Obesity is one of them. Although figures on its prevalence are not available, it is the considered opinion of many physicians that it is not a rare disorder, and that its prevalence is not restricted to the upper social class.

The problem of the nutritional background of ischemic heart disease has attracted physicians and research workers, because incidence and mortality rates are different among the different groups. Generally, they are lower among Jews originating from Asia and North Africa, particularly Yemen, than among Ashkenazis. This lower incidence and the lower mortality rates were found to be correlated with a low content of serum cholesterol and phospholipids. Most workers attribute these findings to differences in ways of life and particularly in food habits rather than to genetic differences between divergent Jewish ethnic groups. This assumption is supported by the results of a study in which two groups of Yemenite Jews, old settlers and new immigrants, were investigated. Higher values of serum lipids were detected among the old settlers, approaching those of Ashkenazi Jews, than in the new immigrants. Consumption of animal protein and of fat, particularly of fat from animal sources, was found to be lower among newcomers from Yemen than among the rest of the population. Some workers believe that the very low incidence rate of ischemic heart disease in Yemenite Jews reflects a low consumption of animal fat before they immigrated to Israel. This belief, however, is refuted by the study on the food

habits of immigrants from Yemen before they came to Israel and thereafter, for it was shown that the amount of animal fat in the daily menu did not change markedly after immigration, but consumption of vegetable fats did rise. Another striking feature is the apparent rise in calorie consumption. As a result, body weight goes up after a few years of residence in Israel, indicating a positive energy balance. The importance of the energy balance is emphasized in another study comprising the kibbutz population: although all members have access to the same food in the common dining room, a higher incidence rate of ischemic heart disease was found among sedentary workers than among members engaged in heavy physical work.

Anaemia in pregnancy and in infancy constitutes a problem of public health importance, nutrition probably being involved. Five studies of pregnant women in Jerusalem and the same number conducted elsewhere in Israel have found the prevalence of haemoglobin levels below 10 gm./100 ml. blood to range from 7 to 39 per cent. The anaemia is mainly hypochromic and microcytic, although cases of macrocytic and normocytic anaemia are not rare. Most cases are believed to be due to iron deficiency. Yet, iron consumption by the general population is not low, particularly in the rural sector (Table 4). Moreover, in that sector, no correlation could be found between iron consumption and prevalence of anaemia. In a study of the prevalence of anaemia in pregnant women in Jerusalem, significant differences were noted between women of different social classes. These differences were associated with differences in the nutritive value of the diet. Furthermore, in the lower social class, nutritionally inferior diets (deficient in iron as well as in other nutrients) were correlated with low haemoglobin values. This correlation was not found in the higher social class. This suggests that, when the diet is superior and general haemoglobin levels tend to be higher, influences other than the diet may assume greater relative importance.

Other studies revealed low values of serum folic and folinic acids in anaemia in pregnancy and in infancy. Even in healthy infants of families belonging to low-income groups, serum folic and folinic acids were much lower than in healthy infants of well-to-do families. Particularly low values were found in infants suffering from infectious diseases accompanied by megaloblastic anaemia. In those cases, folic acid therapy was of great value. In pregnant women, low serum folate values were frequently associated with low serum vitamin B₁₂ and low serum iron.

Adaptation of new immigrants to Israeli dietary habits, too, raised many problems. The immigrant who comes into a new and sometimes strange environment adheres as far as possible to the food habits which he has brought with him. Social anthropologists doubt whether it is desirable to impose changes of his habits on the immigrant, even when those habits are nutritionally wrong.

It is easier for him to adjust himself to his new life if he can stick to his old ways. Nevertheless, economic factors as well as the non-availability of certain foods often thwart this tendency to preserve food habits, especially in smaller ethnic groups. Studies undertaken among immigrants from Yemen and Cochin showed that a gradual change of food habits takes place. New foods are accepted and integrated into the general food pattern. The use of accustomed spices seemed to be of greatest consequence. Introduced to "new" foods, they make them like the "old" and familiar ones.

The relation of food habits to the nutritional health and social adaptation of new immigrants is reported by nutritionists, social anthropologists and health educators in Israel as a central problem of integration.

Nutrition Research

Research in food and nutrition is conducted at the following institutions: the Laboratory of Nutrition of the Hebrew University — Hadassah Medical School at Jerusalem (biochemistry and physiology of nutrition; food research; public health aspects of nutrition); the Department of Animal Husbandry and Biochemistry of the Faculty of Agriculture of the Hebrew University at Rehovot (biochemistry of nutrition; animal nutrition); the College of Home Economics and Nutrition of the Ministry of Education and Culture at Jerusalem (food consumption surveys); the Department of Food and Biotechnology of the Technion, Israel Institute of Technology, at Haifa (food technology); the Department of Food Technology of the National and University Institute of Agriculture at Rehovot (food storage and food preservation); the Department of Preventive Medicine of the Hebrew University-Hadassah Medical School (studies of food consumption and food habits; fluor and dental caries); the Department of Public Health and Social Medicine of the Hebrew University-Hadassah Medical School (epidemiology of anaemia as related to nutrition) and in several clinical departments. Problems of nutrition and ischemic heart disease are studied by three groups.

DENTAL HEALTH

Oral Epidemiology

The oral health status of Israel's population has been the subject of a number of investigations during the last decade. From the accumulated material, a clear-cut pattern begins to emerge with regard to most of the conditions constituting public health problems. For people with a 'Western' way of living, dental caries continues to be the dental disease of the highest prevalence (8, 9, 14, 16), although — at least in youth — to a lesser degree than in highly urbanized and industrialized regions of Central Europe (17, 19, 24). Periodontal disease occupies second place, and is of a prevalence similar to that in those countries (1, 16, 21). For the Oriental communities the relative importance of both oral diseases is reversed (2, 8, 9). Periodontal pathosis has been found to be severest among the ethnic minorities (20, 21), especially Bedouin. The reasons for these differences appear to be of environmental rather than of genetic nature. Dietary habits and status of oral hygiene are of preponderant importance. The latter factor and the demand for oral health services, as opposed to objective needs, are clearly functions of educational rather than economic level (8, 9). A recent survey of whole rural communities consisting of immigrants from Oriental countries and of local minority groups (fellahin, Bedouin, Druzes and Circassians) provided evidence that these groups are rapidly developing towards the 'Occidental' pattern (21).

TABLE 1
DENTAL HEALTH STATUS OF 44 SOLDIERS, 18-20 YEARS OLD,
BY COUNTRY OF BIRTH (LYOR, 1961)

Country of Birth	DMF ¹ Teeth (Average)	(Average) DMF Teeth Restored %	DMF Teeth Extracted %	PMA ² (Average)	OHI ³ (Average)
Israel	4.8	29.3	6.6	5.8	1.6
Asia/Africa	5.0	26.0	16.4	10.4	3.0
Europe	9.4	32.0	17.0	4.6	1.6

¹ D(ecayed), M(issing), F(illed);

² P(apillary), M(arginal), A(ttached) gingivitis;

³ O(ral) H(ygiene) I(ndex), ranging from O (excellent) to 6 (bad).

TABLE 2
DENTAL HEALTH STATUS OF 60 PREGNANT WOMEN, 25-30 YEARS OLD,
BY MONTHLY INCOME (GORDON, 1961)

Monthly Income	DMF ¹ Teeth (Average)	Restorative Needs Met %	Teeth Missing %	Periodont. Index	OHI ³ (Average)
IL 170 and less	7.12	17.8	16.8	1.70	4.60
IL 171-240	9.54	24.2	16.7	1.48	3.70
IL 241-350	13.25	48.9	9.0	1.87	2.94
IL 351 and more	11.52	69.5	10.8	1.35	2.79

³ see Table 1.

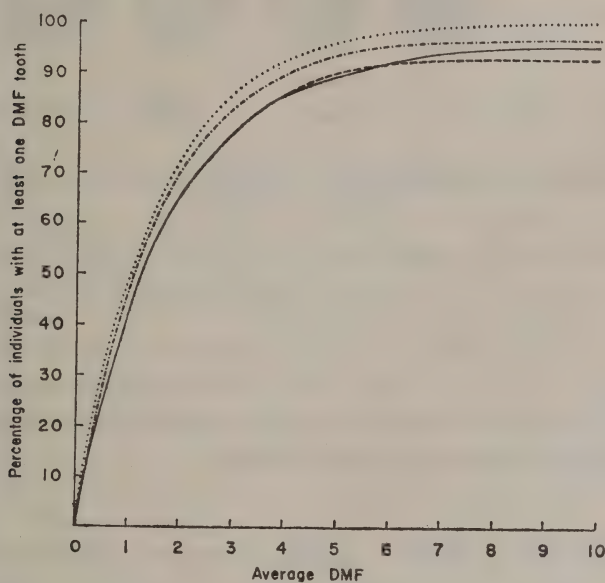


Figure 1. Prevalence of dental caries as expressed by the relation between average DMF and percentage of persons affected

This relation forms an equation and curve of the exponential type, which approaches an asymptote, representing the limit of morbidity. Curves in this figure represent — reading from the uppermost line—Australia, USA, Israel, Indonesia. (Rosenzweig, K.A.: Arch. Oral Biol., 7: 401-6, 1962.)

Malocclusion was found to be a severe problem of Israel's child population (18) and to affect about half of the pupils of the elementary schools. This does not imply that all of them are in need of treatment. Children of European and Israel-born parents, especially in kibbutzim, show a significantly higher rate of those types of malocclusion which are frequently associated with harmful habits, such as finger-sucking and nail-biting, than their counterparts of Oriental background (4). Again, this difference tends to diminish with advancing

'Westernization'. The phenomenon of the absolute and relative increase of acquired malocclusion is not yet well understood.

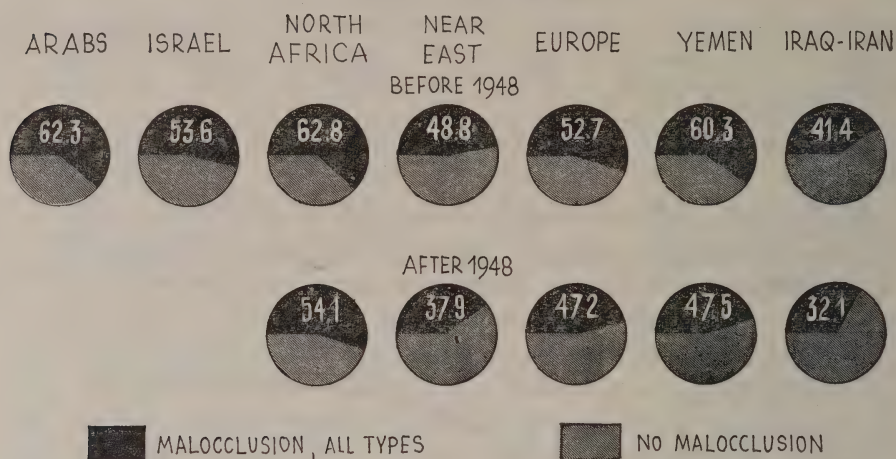


Figure 2. Percentage of children with malocclusion of all types, by origin and period of residence in Israel

Since the oral habits conducive to malocclusion are often accompanied by other disturbances like enuresis (6), it is thought that psychological factors may be the underlying causes, which in turn are said to be a consequence of the changes in the mother-child relationship that loses much of its intimacy in modern society. On the other hand, there is little doubt that imitation plays an important role in the spread of oral habits, especially in kibbutzim. More research is needed to elucidate these processes.

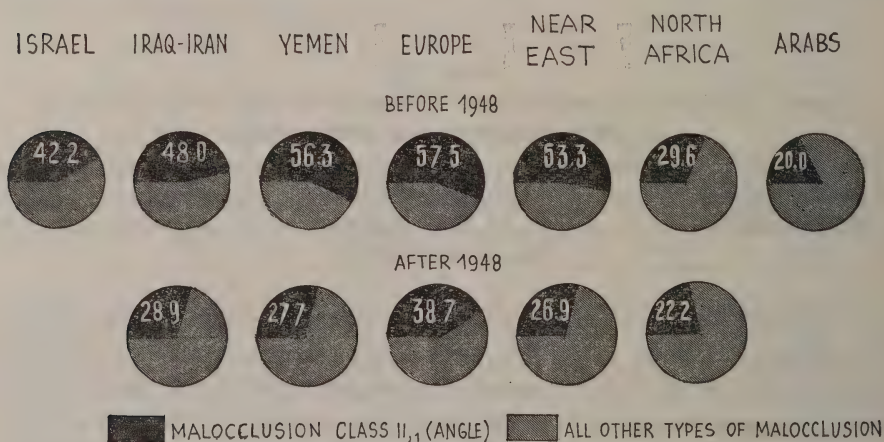


Figure 3. Percentage of malocclusion Class II¹ (Angle), by origin and period of residence in Israel. This type of malocclusion is most frequently associated with deleterious oral habits

Oral Clefts

Since these conditions were made reportable only a few years ago, it is difficult to arrive at an exact estimate of their incidence. In an investigation carried out on a sample of hospitals in 1960, a rate of 12.09 per 10,000 live births was established (3), which would be in the lower part of the range generally encountered. The small number of cases made a detailed analysis impossible, but, when divided into 'Asians' and 'non-Asians' according to origin of the parents, the incidence rate in Asians was significantly higher.

Oral Cancer

The annual incidence rate of oral cancer, including lip, tongue, salivary glands and other regions of the mouth, is, according to a recent publication, 6.1 per 100,000 population for males and 3.2 for females (23). Calculated on the basis of the same publication, these tumors constitute 3.6 per cent of all malignant neoplasms in males, and 1.7 per cent in females, if bone, connective tissue and muscle tumors and malignancies of the lymphatic system are excluded. Because of their site, these neoplasms are frequently first seen by dentists. A centre for diagnosis of oral cancer by means of exfoliative cytology has been established at the Medical Centre in Jerusalem, and dentists are advised to send smears from suspect lesions for examination.

Fluoridation

Thought has been given to the prevention of dental caries by the use of fluorides. Israel's natural water resources in general have a relatively low content of fluoride in the North; it increases towards the South. Besides, there are considerable seasonal variations. Observations carried out over several years showed that the average fluoride content of the water in the major cities varies between 0.4 and 0.6 ppm (6). In an examination of a representative sample of 4,500 schoolchildren (14), 13-14 years of age, only 44 were found afflicted with fluorosis, mostly of a minor degree, and almost all of those affected had immigrated to Israel six years after birth. Thus it appeared reasonable to try to achieve a reduction of the incidence of dental caries by means of fluoridation.


In 1954, an expert committee, appointed by the Ministry of Health, recommended a controlled demonstration project. It was, however, impossible to implement the recommendation, since no suitable communities could be found. Besides, it was impossible to establish the optimal concentration, for which factors such as temperature, humidity, drinking habits and fluoride intake from food other than beverages must be taken into account. Most of these and other factors are still unexplored. On the other hand, endemic fluorosis of borderline significance has been established in the Haifa suburb of Kiryat Haim (20), where

the local water wells have an average concentration of 0.75 ppm of fluoride, while the incidence of caries was not significantly reduced. Clearly, if the optimum concentration of fluoride intake is defined as that 'which in epidemiological and clinical observations has been found to combine the highest degree of caries protection with the lowest degree of mottled enamel', the fluoride content of the local water supply of Kiryat Haim is definitely too high. On the other hand, the supplies of the main cities are apparently not far from the optimum. But it is by no means sure that the comparatively low caries incidence in Israel will be reduced by additional fluorides as much as that in the United States. For all these reasons, no municipality has introduced fluoridation so far. Topical application of fluoride solutions is not practised, either, on a community basis, because the costs would be prohibitive, since dental hygienists are not licensed to practise in Israel, and applications would have to be carried out by dentists (15).

Dental Care — Finances and Facilities

Practically everybody is affected by dental diseases. These are not self-healing, they are cumulative, and need to be treated directly by highly qualified, expensive specialists, by means of a very complicated armamentarium; frequently costly materials have to be used, including precious metals. Hence the expenditure on the treatment of dental diseases as a rule by far exceeds their actual gravity. So far, no survey has been conducted to assess the costs of dental care extended to the population of Israel. The best estimate appears to be that which is based on the average net income of the 1,140 gainfully employed dentists and dental practitioners, in the fiscal years 1961 and 1962, as calculated for two thirds of their number (7). Furthermore, if it is assumed that the net income amounts to about 50 per cent of the gross intake, as is the case in the USA (11) and if the assessment is viewed in the light of the national income, the magnitude of the costs involved becomes obvious.

Dental care programmes are in operation for several sectors of the population. The school dental health service is dealt with elsewhere. The municipality of Tel Aviv provides dental care as part of its curative and rehabilitative activities to aged and needy immigrants; for their specific needs, treatment is essentially prosthetic. The Ministry extends emergency care to the inmates of hospitals for the mentally and chronically ill, and two general Government hospitals — Rambam in Haifa and Tel Hashomer — have their own stomatological departments, the main activities of which are in the field of oral surgery. The Israel Defence Forces have a dental branch as part of the Medical Corps.

 The most important dental care facilities are those which are operated by Kupat Holim in the major cities and in the kibbutzim of Upper Galilee, as an optional benefit for its members. Treatment is provided by salaried dentists on

a fee-for-service basis. Originally meant to be self-sustaining, this service has suffered annual deficits during the last decade which have to be covered from the general budget of Kupat Holim (22). This fact has seriously hampered the development of the dental branch (Table 3), in contrast to the rapid expansion of Kupat Holim's other activities. Evidently the service can cope only with a small part of the needs of the members. Its main value is its influence as a stabilizing factor both on fee schedules and on the quality of dental care in the country as a whole.

TABLE 3
DENTAL SERVICE OF KUPAT HOLIM, 1956-1964

Year	Dentists Employed	Chairs	Visits	Income from Dental Services Rendered IL	Expenses IL
1956	50.3	57	258,891	928,000	1,091,000
1957	53.9	57	290,452	964,000	1,230,000
1958	57.0	57	314,023	1,158,000	1,417,000
1959	56.5	57	320,456	1,439,000	1,562,000
1960	57.0	68	334,609	1,578,000	1,610,000
1961	58.5	68	330,239	1,750,000	1,988,000
1962	62.4	70	348,342	2,056,000	2,076,000
1963	64.7	75	357,561	2,132,000	2,224,000
1964	67.0	78	368,997	2,186,000	2,454,000

Understandably, dental treatment is predominantly a matter of private practice in Israel. This fact is reflected in a survey (13) which showed that in 1962 over 88 per cent of the dentists and all the dental practitioners were self-employed. Although the overall dentist-population ratio appears favourable — 1:1,500 (dentists and dental practitioners together), as in other countries there is an uneven distribution of the manpower between urban and rural communities, very similar to that of physicians.

In conclusion it must be said that, while in many respects the state of dental health, prevention and care in Israel is comparable to that in some of the more advanced countries, there are still large parts of the population which have insufficient access to care facilities, though they may need them more than others to whom the facilities are readily available.

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INTERNATIONAL COOPERATION

Generally speaking, Israel has been cited among the countries which have made good use of technical assistance and have grown progressively more independent. In some spheres Israel is now on the giving side of technical assistance. This holds true in the area of health as well. Israel was a full-scale recipient of technical assistance in this area in the fifties; in the sixties, though still a developing country in need of aid, it was able and willing to render help to developing countries in Africa and Asia.

World Health Organization Projects

The first operation was a medical teaching mission, composed of experts in medicine and public health. A joint undertaking of the WHO and the Unitarian Service Committee, it visited Israel in 1951. Apart from their teaching, the public health experts, Dr. Karl Evang (Oslo), Professors John E. Gordon (Boston), Edward Grzegorzewski (Geneva), and Richard G. Tyler (Seattle), studied problems of local health service and submitted their recommendations through the WHO to the Ministry of Health. Particular stress was laid on the principle of decentralization.

In 1954, the first centre for the prevention of lung diseases was set up under the guidance of two WHO experts, who stayed in Israel for a year and worked in cooperation with the Director of the Tb Department of the Ministry. The centre provides mass radiography and ambulatory treatment for patients in the Tel Aviv - Yafo region and follows up the results. All Tb workers in Israel are trained there. The methods of registration, examination and follow-up introduced by it have now become common practice in all the Tb clinics of Israel.

The Rehabilitation Centre attached to the Assaf Harofe Government hospital in Zerifin was put into operation in 1954, after a polio epidemic which had affected hundreds of children. Its purpose was to provide rehabilitation services on modern lines, but the lack of well-trained physiotherapists was at once manifest. The Ministry, in cooperation with WHO, consequently decided to establish a training school. The WHO consultant was the late Miss Kidd, from Great Britain, who drew up the curriculum and directed the School for the first

two years. When she left, its direction was handed over to a local physiotherapist who had been directly under her guidance. Ever since, the School has been turning out graduates who are readily absorbed in hospitals, rehabilitation centres and out-patient clinics. It maintains rigid standards and the number of applicants for admission exceeds by far that of acceptances. As the turn-out of graduates falls short of demand, Kupat Holim has recently opened a second school.

The Sanitary Engineering Department at the Haifa Institute of Technology was opened in 1956, under Professor Alberto M. Wachs, from Argentina, as a WHO consultant. In it, construction engineers get professional training in sanitary engineering, which allows them to carry out the duties of sanitary engineers for the Ministry and for local authorities. At the same time, it ensures that engineers engaged in construction and public works are acquainted with the requirements of public health and sanitation. Prof. Wachs later joined the permanent staff of the Haifa Institute of Technology.

In 1955, the Ministry asked the American Joint Distribution Committee and WHO to advise and assist in a study of mental illness and psychiatric care in Israel. They agreed and Dr. Armand Sunier, Chief of the Mental Health Section of the Amsterdam Municipal Medical and Health Centre, was appointed by WHO as consultant for the study. He stayed in Israel for five months and presented a comprehensive report to the three sponsors. In the light of it, a long-range plan for psychiatric care was drawn up and has been implemented since in part.

A WHO consultant in public health nursing spent a year (1955/56) in Israel, training practitioners in the approach to comprehensive family care which involves the establishment of family health centres. The consultant organized seminars, courses and study days for public health nurses employed by the Ministry and other agencies.

Dr. Juan Moroder of Chile, WHO consultant on chronic diseases, visited Israel for six months in 1956 to carry out a survey of the state and treatment of chronic diseases, in cooperation with Dr. E. Geltner, Director of the Assaf Harofe Government hospital and Head of its Department of Chronic Diseases.

On the basis of the findings and recommendations of the survey, programmes of care and rehabilitation have been formulated.

In 1952, Professor G.S. Wilson and the late Dr. A. Felix visited Israel on behalf of WHO, surveyed public health laboratories and made proposals for their expansion and improvement. In 1954, the Dr. A. Felix Public Health Laboratory was set up at Abu Kabir near Tel Aviv with WHO help. In 1956, the WHO laboratory consultant, Dr. Lundbeck of Sweden, spent six months in Israel. Working with Dr. S. Levin, coordinator of laboratories in the Mi-

nistry, he reviewed their activities. With a committee of laboratory experts from all local institutions to assist them, Drs. Lundbeck and Levin recommended uniform methods of operation in all public health laboratories and a division of the branches of work among them, according to their respective facilities.

Other projects for which WHO assistance was requested and received include air pollution, child psychiatry, utilization of industrial wastes, higher nursing education, medical records administration, blood transfusion services and medical sociology.

To help in establishing a Department of Social Medicine and Public Health at the Hebrew University-Hadassah Medical School in Jerusalem, WHO provided two visiting professorships, each for three years. A visiting professor in experimental medicine and cancer research was assigned under the programme, as well as a consultant in bio-pharmaceutics for the School of Pharmacy. A WHO consultant in human genetics spent three months of 1965 at the Tel Aviv University.

In 1963, a long-term longitudinal study of the epidemiology of mental illness was started in cooperation with WHO, embracing all hospitalized mental patients in Israel.

From the very beginning, fellowships have been granted by WHO to Ministry staff and to personnel of other health agencies in Israel, to enable them to get post-graduate training in different fields, both by academic enrollment and by means of study tours and seminars. This is of especial value in building up cadres of public health personnel, physicians, sanitary engineers and nurses. At the same time, Israel is a host country for holders of WHO fellowships desirous of studying the set-up and content of new health services, and has, besides, contributed to WHO a limited number of one-year research fellowships.

A considerable number of Israeli specialists have been recruited by WHO for assignments of varying lengths of time. They include staff at headquarters in Geneva (malaria eradication, drug control, research planning), teaching assignments (sanitary engineering at the Universities of Madras and Manila), and field personnel (Ghana, Liberia, Ivory Coast, Congo-Kinshassa, Burma and Mexico).

Other medical personnel from Israel have been serving as members of WHO advisory panels of experts.

Israel has been a member of the World Health Organization since 1949 and has loyally shouldered the responsibilities of membership just as it gratefully acknowledges the benefit of services received.

On the regional level, politics have created difficulty. Member-States are divided into six regions (Europe, Africa, the Americas, South-East Asia, Western Pacific, Eastern Mediterranean). Israel belongs to the Eastern Mediterranean region, whose headquarters are in Alexandria. The Arab States, constituting the main membership of the region, will not cooperate with Israel, preventing its integration in regional work. They have banned joint meetings; an arrangement whereby the annual meeting of the Regional Committee takes the form of two sub-committees, one with Israel as the only absentee and the other with all Arab States absenting themselves, has proved ineffectual and undignified.

USOM — United States Operations Mission

The Health Section of USOM was active in Israel between 1952 and 1956.

The Mission aimed mainly at the following goals: decentralization of health services; planning for several years ahead; drawing up a training programme for professional workers; introducing work process research; health education for the general public; a comprehensive nursing service; a comprehensive sanitation service; coordination of services through health centres.

The first programme dealt with sewerage and drainage. To start with, an American engineering firm carried out a survey of the requirements of eight towns, viz., Jerusalem, Rehovot, Nahariya, Netanya, Lod, Ramla, Migdal-Ashqelon and Tiberias. Subsequently, technical advice was given by the Sanitary Engineering Department of the Haifa Institute of Technology to the local authorities through the Ministry. A drainage water control laboratory was set up in the public health laboratory at Abu Kabir, with a view to using sewage effluent for agricultural purposes. The USOM expert assisted in training the engineers of the Ministry and local authorities, and several such got grants for further study abroad.

A consultant psychiatric nurse from the USA advised the Ministry, from 1953 until 1955, in the training of health workers — mainly nurses — in mental hygiene, with special reference to immigrants. To be torn from the cultural environment of their countries of origin and suddenly introduced into a totally different society with entirely new values often brought about a profound emotional upheaval that gave rise to many mental health problems. During the second year of the programme, the emphasis was put on the training of mental hygiene teachers and supervisors of nurses. This involved the organization of seminars and study days.

A Local Health Unit was set up in Netanya as a demonstration project. The programme centred round the Netanya Health Office, which was subsidized budgetarily and with extra staff. The operations included the intensive training

of health workers, public health education, coordination between services and participation of the local authority in their management.

In 1954, a Health Education Section was set up in the Ministry with the arrival in Israel of a USOM Advisor on Health Education.

On the recommendation of USOM, the Ministry introduced the anthropological approach as a basis for health service planning. With the aid of USOM funds, several social surveys of the population were carried out, to furnish data for establishing regional health centres.

The Kiryat Shmona Health Centre was opened in 1956 as a joint enterprise of the Ministry and Kupat Holim, with help from USOM. Anthropological investigations into the composition of the population and its attitude to health problems preceded the establishment of the Centre, which serves a number of villages within the jurisdiction of the Regional Council of Upper Galilee. The Council was made an active partner in its planning and construction. Comprehensive health services are provided for the population of Kiryat Shmona. The nurses pay regular home visits, giving advice and treatment, both in Kiryat Shmona and in the neighbouring villages, where affiliated sub-centres have been started. The main centre has a delivery room and a sick-room for urgent uncomplicated cases which require no more than adequate hospitalization and good medical care.

The Public Health Training Centre at Zerifin was set up in 1956 by the initiative and with the active aid of USOM. Recently a regular school for sanitary personnel, with a three-year curriculum, has been instituted.

USOM helped to carry out an investigation of infantile enteritis in the Ramla district. Enteritis weakens and even endangers the life of infants during the summer months, mainly in villages, and involves a great deal of hospitalization. The purpose of the survey, in 1955 and 1956, was to study the social, cultural and sanitary factors affecting its incidence. Additional nurses made it possible to step up the number of home visits for the early discovery of cases and the instruction of parents in simple preventive measures. At the same time, preventive and curative services were coordinated. The sanitation of villages was improved and flies were exterminated.

USOM also provided funds and advice for the betterment of milk sanitation. Equipment was furnished for the Milk Branch Training Centre in Rehovot, and milk hygiene was introduced into the curriculum of all dairy workers trained there.

Three of the Mission's projects complemented the work of WHO. The first joint project was the establishment of a sanitary engineering laboratory at the Haifa Institute of Technology. The second was the supply of equipment to the

public health laboratory at Abu Kabir and of vehicles to the public health laboratory at Haifa. The third was a share in the cost of a survey of the chronically diseased, conducted jointly by the Ministry of Health, WHO and Malben.

UNICEF

The United Nations International Children's Emergency Fund (UNICEF) has assisted the Government of Israel ever since the establishment of the State.

The first programme (1949-1952) was one of emergency aid: UNICEF provided milk powder, sugar, rice, cocoa, cheese and cod liver oil for children at a time when the population was growing rapidly and a severe regime of austerity had to be enforced. There were also shipments of leather, to be made into shoes for distribution to needy children.

A major project concerned milk conservation. UNICEF was instrumental in helping to develop five milk-pasteurizing plants and a sterilizing plant; these have resulted in practically all the milk supply being marketed in bottles and pasteurized. The improvement of quality has been a major factor in encouraging a significant rise in the consumption of milk and dairy products.

The mass tuberculin-testing and BCG vaccination campaign in Israel was part of what was called the 'Joint Enterprise', a cooperative effort of UNICEF and the Scandinavian Red Cross Societies. 365,000 persons were tested and 209,000, found susceptible, were vaccinated. UNICEF gave vehicles, equipment and vaccine for the campaign.

Other UNICEF assistance in health service projects included: technical equipment for the premature infant service at the WIZO Baby Home in Tel Aviv, the Rambam Government hospital in Haifa and the Government hospital in Poriah; technical equipment and a bus for the polio ward and rehabilitation centre at the Assaf Harofe Government hospital; thirteen vehicles, technical equipment and some supplies of drugs for health centres, as well as teaching equipment for the training of the staffs of the centres.

In nutrition, UNICEF supported a study of dietary habits and nutritional deficiencies undertaken by a group of students of the College of Nutrition and Home Economics, sampling six hundred families.

A project still in progress has to do with the eradication of *tinea capitis* by oral treatment with griseofulvin. UNICEF has given half of the amount of the drug estimated to be required for the campaign, as well as a certain amount of laboratory equipment.

Bilateral Assistance to Developing Countries

Technical assistance is, or rather should be, by its very nature a give-and-take proposition. Hence Israel, in an attempt at reciprocation, has been trying

to share its experience with other countries. Of the far-flung technical assistance which Israel renders to developing countries, particularly in Africa, medical and health services form an integral, though on the whole a somewhat modest, part. Of thousands of Israeli experts in various fields who served in recent years abroad, fifteen per cent were in the medical and allied professions, on tours of duty ranging from a month to several years, and in a variety of assignments that included advice to national health administrations, service in hospitals and clinics and other services and surveys. Simultaneously, several hundred trainees from developing countries came to Israel, including undergraduate medical students in a special course at the Hebrew University-Hadassah Medical School, physicians for post-graduate training in various specialties, and nurses, both male and female.

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